UNITED STATES
AIR FORCE

OCCUPATIONAL SURVEY REPORT

COMMUNICATIONS – COMPUTER SYSTEMS PROGRAMMING

AFSC 3C0X2

OSSN: 2363

JULY 1999

OCCUPATIONAL ANALYSIS PROGRAM
AIR FORCE OCCUPATIONAL MEASUREMENT SQUADRON
AIR EDUCATION and TRAINING COMMAND
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PREFACE

This report presents the results of an Air Force Occupational Survey of the Communications - Computer Systems Programming career ladder, Air Force Specialty Code (AFSC) 3C0X2. Authority for conducting occupational surveys is contained in AFI 36-2623. Computer products used in this report are available for use by operations and training officials.

The survey instrument was developed by Second Lieutenant Joseph McAmis. Computer programming support was provided by Mr. Tyrone Hill. Ms. Dolores Navarro provided administrative support. First Lieutenant Robert J. Schmoldt analyzed the data and wrote the final report. This report has been reviewed and approved by Lt Col Roger W. Barnes, Chief, Airman Analysis Section, Occupational Analysis Flight, Air Force Occupational Measurement Squadron (AFOMS).

Copies of this report are distributed to Air Staff sections, major commands, and other interested training and management personnel. Additional copies are available upon request to AFOMS/OMYXI, 1550 5th Street East, Randolph Air Force Base, Texas 78150-4449, or by calling DSN 487-5543. For information on the Air Force occupational survey process or other on-going projects, visit our web site at http://www.omsq.af.mil.

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SUMMARY OF RESULTS

1. **Survey Coverage**: The Communications - Computer Systems Programming career ladder was surveyed to provide current job and task data for use in updating career ladder documents and training programs. Survey results are based on responses from 1,370 active duty 3-, 5-, and 7-skill level members, accounting for 72 percent of the total population surveyed.

2. **Specialty Jobs**: Three clusters and three jobs were identified in the career ladder structure analysis. The General Programming Cluster, Systems/Network Administration Cluster, Quality Assurance and Testing Job, and Configuration Management Job are highly oriented toward technical task performance and account for 72 percent of the population. The remaining Management Cluster and Formal Training Job are managerial and training in nature, accounting for an additional 10 percent of the sample population. The remaining 18 percent did not group into an identifiable job or cluster.

3. **Career Ladder Progression**: A somewhat typical pattern of progression is noted within the AFSC 3C0X2 career ladder. Personnel at the 3- and 5-skill levels work in the technical jobs of the career ladder and spend most of their time on technical tasks. As incumbents move up to the 7-skill level they begin to perform supervisory tasks, but still spend some of their time performing the technical tasks of the career ladder.

4. **Training Analysis**: An examination of the Specialty Training Standard (STS) reveals an extremely well supported document. Only one area warrants closer examination due to a lack of support. Some tasks that were not matched to areas within the STS should be considered for inclusion based on a high training emphasis and high percentages of members performing.

5. **Job Satisfaction**: Job satisfaction among AFSC 3C0X2 indicates members remained generally satisfied in the work they perform. When compared to support AFSCs surveyed in 1998, members are not as satisfied and re-enlistment intentions widely differ, negatively, across all TAFMS groups.

6. **Implications**: Based on the analysis of responses from AFSC 3C0X2 personnel included in the survey sample, members generally perform the core work within the career field, yet can be identified performing operating type work, as well as Systems and Network Administration type work. Dissatisfaction is noted in Job Inventory Write-In Comments concerning this cross-utilization of human resources. Progression for this career field is typical, meaning that members at the 3- and 5-skill level perform technical tasks, and progress toward performing managerial and supervisory activity at the 7-skill level. The STS is extremely well supported, with lack of support found in only one area. A comprehensive review should be provided by technical training personnel to validate the STS findings. Finally, job satisfaction indicators paint a picture of members who generally enjoy the work they perform, yet plan on reenlisting at a very low rate. Job Inventory write-in comments offer the explanation of lucrative civilian opportunities and the perceived lack of utilization or mis-utilization of computer programming personnel in the Air Force.

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OCCUPATIONAL SURVEY REPORT (OSR)
COMMUNICATIONS – COMPUTER SYSTEMS PROGRAMMING
(AFSC 3C0X2)

INTRODUCTION

This is a report of an occupational survey of the Communications - Computer Systems Programming career ladder conducted by the Air Force Occupational Measurement Squadron (AFOMS). Survey data will be used to identify current utilization patterns among career ladder personnel and evaluate career ladder documents and training programs.

Background

As described in the AFMAN 36-2108, *Airman Classification,* dated 31 Oct 98, Communications - Computer Systems Programming personnel supervise and perform communications - computer systems software analysis, development, design, and programming. They develop computer systems programs and procedures. Additionally, they interpret specification, coding, formats, testing, maintaining, and modifying programs. They also analyze and design automated systems. As well, they prepare documentation of proposal specifications and programs. Finally, they perform program and documentation maintenance.

Personnel entering the AFSC 3C0X2 career ladder must attend the E3ABR3C032-001, Communications - Computer Systems Programming Apprentice course at Keesler AFB MS. This course lasts 11 weeks and provides "hands-on" training and knowledge required by the AFSC 3E8X1 STS.

Entry into this career ladder currently requires eligibility for a Secret security clearance. Additionally, a minimum score of 71 on the Air Force Electronic Data Processing Test is mandatory for entry into this AFSC.

SURVEY METHODOLOGY

Inventory Development

The data collection instrument for this occupational survey was USAF Job Inventory (JI) Occupational Survey Study Number (OSSN) 2363, dated December 1998. A tentative task list was prepared after reviewing pertinent career ladder publications and directives, pertinent tasks from the previous survey instrument, and data from the last OSR. The preliminary task list was refined and validated through personal interviews with 21 subject-matter experts (SMEs) at the following training location and operational installations:

BASE	UNIT VISITED
Keesler AFB MS	333 TRS
Langley AFB VA	82 CSS
Gunter-Annex Maxwell AFB AL	HQ SSG
Offut AFB NE	55 CSS

The resulting JI contains a comprehensive listing of 366 tasks grouped under 11 duty headings, and a background section requesting such information as grade, base, MAJCOM assigned, organizational level, component status, job title, functional area, work schedule, level of systems programmed, programming languages used, and numbering systems used.

Survey Administration

From December 1998 through March 1999, base-training offices at operational units worldwide administered the inventory to eligible AFSC 3C0X2 personnel. Job incumbents were selected from a computer-generated mailing list obtained from personnel data tapes maintained by the Air Force Personnel Center, Randolph AFB TX. Each individual who completed the inventory first completed an identification and biographical information section and then checked each task performed in his or her current job. After checking all tasks performed, each member then rated each of these tasks on a 9-point scale, showing relative time spent on that task, as compared to all other tasks checked. The ratings ranged from 1 (very small amount time spent) through 5 (about average time spent) to 9 (very large amount time spent). To determine relative time spent for each task checked by a respondent, all of the incumbent's ratings are assumed to account for 100 percent of his or her time spent on the job and are summed. Each task rating is then divided by the total task ratings and multiplied by 100 to provide a relative percentage of time for each task. This procedure provides a basis for comparing tasks in terms of both percent members performing and average percent time spent.

Survey Sample

Personnel were selected to participate in this survey so as to ensure an accurate representation across major commands (MAJCOM) and military paygrade groups. All eligible active duty 3-, 5-, and 7-skill level AFSC 3C0X2 personnel were mailed survey disks. Table 1 reflects the percentage distribution, by MAJCOM, of assigned AFSC 3C0X2 personnel as of November 1998. The 1,370 respondents in the final sample represent 67 percent of the total assigned personnel and 72 percent of the total personnel surveyed. Table 2 reflects the paygrade distribution for these AFSC 3C0X2 personnel.

TABLE 1

COMMAND DISTRIBUTION OF AFSC 3C0X2 PERSONNEL

COMMAND	PERCENT OF ASSIGNED*	PERCENT OF SAMPLE
AFMC	23	27
ACC	17	20
AETC	8	9
AIA	7	8
AMC	6	7
AWS	6	7
USSTRATCOM	6	5
OTHERS	27	17

TOTAL ASSIGNED* = 2,060
TOTAL SURVEYED** = 1,912
TOTAL IN SURVEY SAMPLE = 1,370
PERCENT OF ASSIGNED IN SAMPLE = 67%
PERCENT OF SURVEYED IN SAMPLE = 72%

* Assigned strength as of November 1998
** Excludes personnel in PCS, student, or hospital status, or less than 6 weeks on the job

TABLE 2

PAYGRADE DISTRIBUTION OF SURVEY SAMPLE

GRADE	PERCENT OF ASSIGNED*	PERCENT OF SAMPLE
E-1 - E-3	14	16
E-4	23	23
E-5	28	28
E-6	20	20
E-7	15	13

* Assigned strength as of November 1998

Both Command and Paygrade distribution of the survey sample are close to the percent assigned. This indicates the sample is a true representation of the career ladder population.

Task Factor Administration

Job descriptions alone do not provide sufficient data for making decisions about career ladder documents or training programs. Task factor information is needed for a complete analysis of the career ladder. To obtain the needed task factor data, selected senior AFSC 3C0X2 personnel (generally E-6 or E-7 craftsmen) also completed a second booklet for either training emphasis (TE) or task difficulty (TD). These booklets were processed separately from the JIs. This information is used in a number of different analyses discussed in more detail within the report.

Training Emphasis (TE): TE is a rating of the amount of emphasis that should be placed on tasks in entry-level training. The 41 senior NCOs who completed a TE booklet were asked to select tasks they felt require some sort of structured training for entry-level personnel and then indicate how much training emphasis these tasks should receive, from 1 (extremely low emphasis) to 9 (extremely high emphasis). Structured training is defined as training provided at resident training schools, formal on-the-job-training (OJT), or any other organized training method. Interrater agreement for these 41 raters was acceptable. The average TE rating was 2.47, with a standard deviation of 1.47. Any task with a TE rating of 3.93 or above is considered to have high TE.

Task Difficulty (TD): TD is an estimate of the amount of time needed to learn how to do each task satisfactorily. The 45 senior NCOs who completed TD booklets were asked to rate the difficulty of each task using a 9-point scale (extremely low to extremely high). Interrater reliability was acceptable. Ratings were standardized so tasks have an average difficulty of 5.00

and a standard deviation of 1.00. Any task with a TD rating of 6.00 or above is considered to be difficult to learn.

When used in conjunction with the primary criterion of percent members performing, TE and TD ratings can provide insight into first-enlistment personnel training requirements. Such insights may suggest a need for lengthening or shortening portions of instruction supporting entry-level jobs.

SPECIALTY JOBS

The first step in the analysis process is to identify the structure of the career ladder in terms of the jobs performed by the respondents. The Comprehensive Occupational Data Analysis Program (CODAP) assists by creating an individual job description for each respondent based on the tasks performed and relative amount of time spent on these tasks. The CODAP automated job clustering program then compares all the individual job descriptions, locates the two descriptions with the most similar tasks and time spent ratings, and combines them to form a composite job description. In successive stages, CODAP either adds new members to this initial group, or forms new groups based on the similarity of tasks and time spent ratings.

The basic group used in the hierarchical clustering process is the ***Job***. When two or more jobs have a substantial degree of similarity, in tasks performed and time spent on tasks, they are grouped together and identified as a ***Cluster***. The structure of the career ladder is then defined in terms of clusters and jobs of jobs.

Overview of Specialty Jobs

Based on the analysis of tasks performed and the amount of time spent performing each task, three clusters and three independent jobs were identified within the career ladder. Figure 1 illustrates the clusters and jobs performed by AFSC 3C0X2 personnel.

A listing of these clusters and jobs is provided below. The stage (STG) number shown beside each title references computer printed information, the letter "N" indicates the number of personnel in each group.

I. GENERAL PROGRAMMING CLUSTER (STG082, N=686)
   - A. Systems Programming Job (Stg145, N=256)
   - B. Senior Systems Programming Job (Stg149, N=329)
   - C. Data Base Administration Job (Stg232, N=64)

II. SYSTEMS/NETWORK ADMINISTRATION CLUSTER (STG053, N=243)
   - A. Help Desk Technician Job (Stg079, N=76)
   - B. Systems/Network Administration Job (Stg174, N=119)
   - C. Systems/Network Security Job (Stg170, N=18)
   - D. Supply Job (Stg155, N=14)

III. MANAGEMENT CLUSTER (STG128, N=127)
   - A. Senior Systems/Network Administration Job (Stg367, N=8)
   - B. AWACS Systems Programming Management Job (Stg226, N=12)
   - C. Senior Management Job (Stg162, N=83)

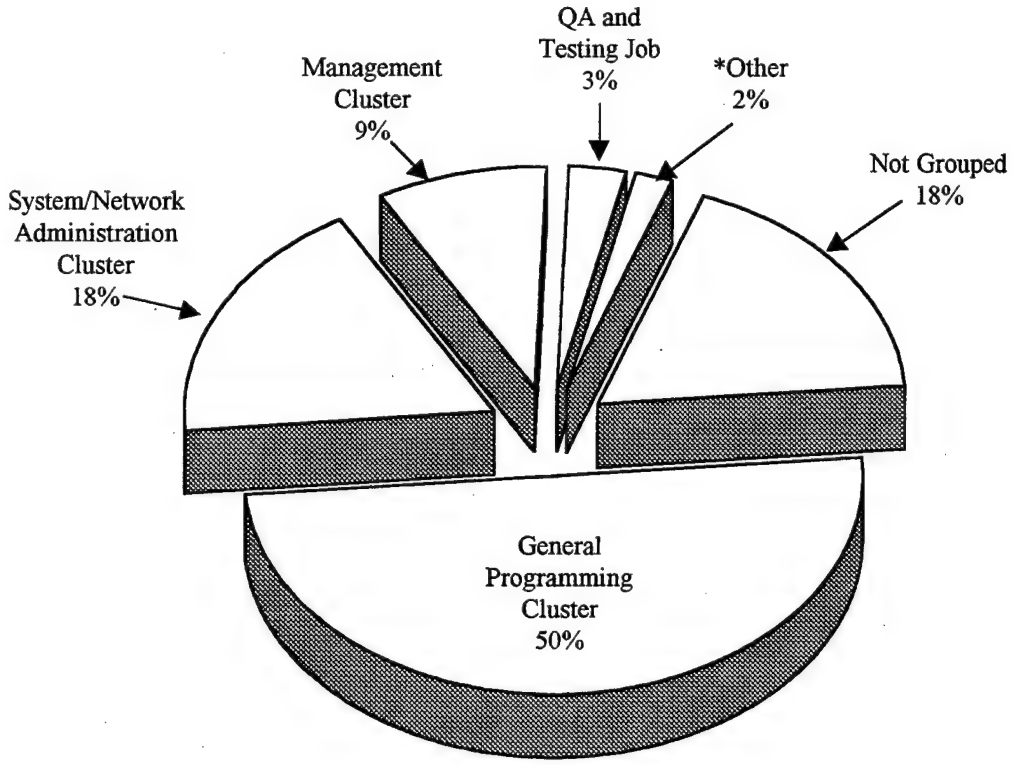
IV. QUALITY ASSURANCE AND TESTING JOB (STG203, N=36)

V. CONFIGURATION MANAGEMENT JOB (STG140, N=19)

VI. FORMAL TRAINING JOB (STG214, N=16)

The respondents forming these clusters and jobs account for 82 percent of the survey sample. The remaining 18 percent, for one reason or another, did not group into one of these jobs or clusters. Examples of job titles for these personnel include CAMS Programmer, Software Engineer, JSTARS Computer Systems Programmer, and Librarian.

AFSC 3C0X2 CAREER LADDER SPECIALTY JOBS
(N = 1,370)



*Other includes Configuration Management Job (1%), and Formal Training Job (1%)

FIGURE 1

Group Descriptions

The following paragraphs contain brief descriptions of the clusters and jobs identified through the career ladder structure analysis. Table 3 presents the relative time spent on duties by members of these specialty clusters and jobs. Selected background data for these clusters and jobs are provided in Table 4. Representative tasks for all the groups are contained in Appendix A.

I. GENERAL PROGRAMMING CLUSTER (STG082). The 686 airmen performing within this cluster (50 percent of the survey sample) largely separate into three distinguishable jobs (see discussion below) and represent the core of the career ladder. They spend 58 percent of their time performing the Software Planning, Design, Development, Implementation and Maintenance tasks of Duties B and C, and another 13 percent performing General Communications - Computer Systems activities of Duty A (see Table 3). The average number of tasks performed by this group is 85, the highest of any other cluster or job, indicating some diversity in performing the core activities of the career field. Distinctive tasks performed include:

- Debug computer programs
- Code computer programs in high-level compiler languages
- Compile or assemble programs
- Modify software applications
- Analyze source code listings
- Design main program algorithms or logic
- Code error handling routines
- Correct syntax errors
- Desk check programs

Fifty-six percent of these airmen hold the 5-skill level and 29 percent the 7-skill level. These members average 6 years in the career field and 10 years Total Active Federal Military Service (TAFMS). The predominant paygrades of this large cluster are E-4 and E-5. Thirty-one percent of the members this core cluster are in their first enlistment.

There are three distinct jobs within this cluster that are separated by the type and frequency of the tasks performed. A description of each of the jobs follows.

The **Systems Programming Job** is defined by the 58 percent members performing the Software Development, Implementation, and Maintenance tasks of Duty C. These 256 members account for 37 percent of the General Programming Cluster. They perform an average 45 tasks, indicating a somewhat diverse job of systems programming. The predominant paygrades are E-4 and E-5, averaging 4 ½ years in the career field and 7 years TAFMS.

Representative tasks performed by this job are:

- Debug computer programs
- Code computer programs in high-level compiler languages
- Compile or assemble programs
- Design main program algorithms or logic
- Analyze source code listings
- Modify software applications

The **Senior Systems Programming Job** accounts for 48 percent of the cluster and are defined by the higher, diversified average of 123 tasks performed, many within duties A, B, and C. Fifty-four percent of these job members are E-5 or E-6. Fifty-two percent hold the 5-skill level and 37 percent the 7-skill level. These members average just under 7 years in the career field and 11 ½ years TAFMS, indicating the senior members performing the core work of the career field.

Representative tasks for this job include:

- Participate in software reviews
- Participate in peer reviews
- Review software problem reports
- Debug computer programs
- Modify software applications
- Desk check programs

The 64 members of the **Data Base Administration Job** account for 9 percent of the General Programming Cluster. They are defined by the common Software Development, Implementation, and Maintenance tasks of Duty C, along with the Data Base activites of Duty E, which they spend 24 percent of their time performing. The predominant paygrade of this job is E-6. These job incumbents average over 6 years in the career field and 12 years TAFMS, the highest of any other job within this cluster.

Representative tasks for this job are:

- Write data base programs
- Analyze data bases
- Modify data base structures
- Analyze data base requirements
- Review data base specifications
- Design data base specifications

II. SYSTEMS/NETWORK ADMINISTRATION CLUSTER (STG053). The 243 airmen primarily performing four jobs within this cluster (18 percent of the survey sample) represent the work being performed that relates to Systems and Network Administration. They spend 45 percent of their time performing tasks that relate to General Communications - Computer Systems activities of Duty A (see Table 3). The average number of tasks performed by this group is 64. Distinct tasks performed include:

- Assist customers in resolving computer software malfunctions or problems
- Troubleshoot causes of machine stops or malfunctions, other than peripheral equipment
- Check operational status of equipment
- Correct stoppages or malfunctions on communications - computer systems peripheral equipment
- Remove or replace computer internal components
- Perform user maintenance on communications – computer systems equipment
- Notify personnel, such as supervisors or remote users of machine failures or downtime
- Prepare communications – computer systems equipment for operation
- Prepare peripheral equipment for operation
- Perform communication – computer systems recovery procedures

Fifty-nine percent of these airmen hold the 5-skill level and 34 percent the 7-skill level. These members average 6 ½ years in the career field and 10 ½ years TAFMS. The predominant paygrades of this large cluster are E-4 through E-6. Twenty-five percent of this cluster is in their first enlistment. Additionally, 20 percent of these members are assigned overseas.

There are four distinct jobs within this cluster that are separated by the type and frequency of the tasks performed.

The **Help Desk Technician Job** is defined by the 65 percent time spent performing the General Communications - Computer Systems Activity tasks of Duty A, and largely relate to helping customers resolve computer software malfunctions and other problems. These 76 members account for 31 percent of the Systems/Network Administration Cluster. They perform an average of only 24 tasks, indicating a very narrow job. The predominant paygrades are E-3 through E-5, averaging 5 years in the career field and 8 years TAFMS.

Representative tasks for this job include:

- Assist customers in resolving computer software malfunctions or problems
- Troubleshoot causes of machine stops or malfunctions
- Check operational status of equipment
- Correct stoppages or malfunctions on communications – computer systems peripheral equipment
- Remove or replace computer internal components

The **Systems/Network Administration Job** perform the core work of the cluster, accounting for 49 percent of the cluster members. They are defined by the 99 tasks performed, largely within duty area A. Thirty-two percent of these job members are in the E-5 paygrade, with an additional 26 percent in the E-6 paygrade. Fifty-four percent hold the 5-skill level and 40 percent the 7-skill level. These members average just under 8 years in the career field and 12 years TAFMS.

Representative tasks performed by members of this job are:

- Prepare peripheral equipment for operation
- Perform communications – computer systems recovery procedures
- Set or reset computer time clocks
- Assign file or disk space to users or projects

The 18 members of the **Systems/Network Security Job** account for 7 percent of the Systems/Network Administration Cluster and mainly perform security measures in relationship to networks. The Security tasks of Duty F, along with the General Communications – Computer Systems tasks of Duty A account for 64 percent of their time. The predominant paygrade of this job is E-4 and E-6. These job incumbents average over 6 years in the career field and 11 years TAFMS.

Representative tasks performed by personnel within this job include:

- Store or safeguard classified materials
- Destroy sensitive unclassified materials
- Destroy classified materials or documents
- Verify authorization to access files
- Authorize or deny access to restricted or controlled areas or classified materials
- Transfer programs or data from one media to another media

The 14 members who comprise the **Supply Job** spend more time working on supply related tasks within the context of system networks than any other identifiable grouping. Sixty-three percent of their time is spent performing the supply-related activities within Duty K, as well as general Communications – Computer Systems tasks within Duty A. The predominant paygrade is E-4. These members average 7 ½ years in the career field and over 9 years TAFMS.

Representative tasks performed by members of this job are:

- Inventory equipment, tools, parts, or supplies
- Pick up, deliver, or store equipment, tools, parts, or supplies
- Issue or log turn-ins of equipment, tools, parts, or supplies
- Initiate requisitions for equipment, tools, parts, or supplies
- Check operational status of equipment
- Identify and report equipment or supply problems

III. MANAGEMENT CLUSTER (STG128). The 127 personnel forming this cluster with three distinct jobs (9 percent of the survey sample) perform an average of 62 tasks and are distinguished by the 37 percent of their time spent performing the Management and Supervisory tasks of Duty H (see Table 3). They spend another 17 percent of their time performing the General Communications – Computer Systems tasks of Duty A. Distinctive management and supervisory tasks performed include:

- Write or indorse military performance reports
- Evaluate personnel for compliance with performance standards
- Counsel subordinates concerning personnel matters
- Determine or establish work assignments or priorities
- Conduct supervisory performance feedback sessions
- Establish performance standards for subordinates
- Write recommendations for awards or decorations
- Interpret policies, directives, or procedures for subordinates
- Evaluate progress of trainees

The predominant paygrades of this cluster is E-6 (see Table 4), averaging 9 years in the career field and 15 ½ years TAFMS. Sixty-eight percent report holding the 7-skill level with 91 percent supervising others. Furthermore, 13 percent of these members are assigned to units overseas.

There are three distinct jobs within this cluster.

The **Senior Systems/Network Administration Job** accounts for 6 percent of the cluster and are defined by the mix of the average 43 tasks performed between the General Communications – Computer Systems activities of Duty area A and the Management and Supervisory activities of Duty area H, where a combined 70 percent of all of their activity lies. Sixty-three percent of these job members are in the E-6 paygrade. Seventy-five percent hold the 7-skill level. These members average 8 ½ years in the career field and 15 years TAFMS.

Representative tasks performed by these personnel include:

- Assist customers in resolving computer software problems or malfunctions
- Check operational status of equipment
- Assign file or disk space to users or projects
- Conduct supervisory performance feedback sessions
- Write or indorse military performance reports
- Determine or establish work assignments or priorities

The 12 members of the **AWACS Systems Programming Management Job** account for 9 percent of the Management Cluster. Most of these members work in the 552nd Computer Systems Squadron at Tinker AFB and manage the programming aspects of the E-3, AWACS

Computer Systems. The Security tasks of Duty F, along with the Management and Supervisory tasks of Duty H account for 43 percent of their time. The predominant paygrade of this job is E-5. These job incumbents average over 8 years in the career field and 13 years TAFMS.

Representative tasks performed by these job personnel include:

- Store or safeguard classified materials
- Initiate classified reports, messages or documents
- Initiate processing, such as batched job, on-line, or off-line
- Destroy classified materials or documents
- Designate classified materials for destruction
- Destroy sensitive unclassified materials

The 83 members who comprise the **Senior Management Job** spend more time working on management and supervisory tasks than any other job, performing an average of 67 tasks. The predominant paygrade is E-6 and E-7, accounting for 90 percent of the members. These members have the most time TAFMS, averaging 16 years.

Representative tasks performed by these senior job members include:

- Determine or establish work assignments or priorities
- Conduct general meetings, such as staff meetings, briefings, and conferences
- Write or endorse military performance reports
- Write recommendations for awards or decorations
- Interpret policies, directives, or procedures for subordinates

IV. QUALITY ASSURANCE AND TESTING JOB (STG203). The 36 airmen forming this job (3 percent of the survey sample) are distinguished by the 25 percent of their time spent performing the Software Testing and Quality Assurance activities of Duty D (see Table 3). They perform an average of 78 tasks. Distinct representative tasks performed by these incumbents include:

- Run validation and verification tests on communications – computer systems
- Prepare communications – computer systems test reports
- Analyze communications – computer system test results
- Participate in communications – computer systems software acceptance tests
- Prepare communications – computer systems test plans, other than software interface
- Review software problem reports
- Participate in communications – computer systems equipment acceptance tests
- Develop inputs to communications – computer systems test plans
- Evaluate communications – computer system test plans
- Prepare communications – computer systems software analysis reports

The predominant paygrade is E-5. Fifty-six percent hold the 5-skill level, while 23 percent are in their first enlistment (see Table 4). The members of this job average almost 6 years in the career field and over 10 years TAFMS.

V. CONFIGURATION MANAGEMENT JOB (STG140). The 19 airmen forming this job (1 percent of the survey sample) are distinguished by the 43 percent of their time spent performing the Configuration Management activities of Duty D (see Table 3). They perform an average of 52 tasks, the smallest number by any cluster or independent job identified. Distinct representative tasks performed by these personnel include:

- Conduct configuration management audits
- Track status of software discrepancies
- Assign configuration management control numbers
- Maintain change control form logs or configuration status control logs
- Prepare software release packages
- Evaluate configuration management plans
- Draft or write configuration management plans
- Inventory software release packages
- Participate in configuration control boards
- Draft or write in configuration management audit reports

The predominant paygrade is E-5. Sixty-three percent hold the 5-skill level, and 26 percent are in their first enlistment (see Table 4). The members of this job average 6 years in the career field and 10 years TAFMS.

VI. FORMAL INSTRUCTOR JOB (STG214). Comprising 1 percent of the survey sample, these 16 airmen report 41 percent of their time performing Training tasks of Duty I. They also spend 15 percent of their time performing the Software Development, Implementation, and Maintenance tasks of Duty C (see Table 3). The members of this job perform an average of only 56 tasks, indicating their specialization in instructional duties. Representative of these limited tasks are:

- Conduct formal course classroom training
- Develop or procure training materials or aids
- Evaluate progress of trainees
- Inspect training materials or aids for operation or suitability
- Personalize lesson plans
- Develop written tests
- Develop training programs, plans, or procedures

- Develop formal course curricula, plans of instruction (POI), or specialty training standards (STSs)
- Establish or maintain study reference files
- Maintain training records or files

Fifty-six percent of these job incumbents hold the 7-skill level, with an additional 44 percent holding the 5-skill level (see Table 4). These members average 11 years in the career field and 15 years TAFMS. The predominant paygrades are E-5 and E-6.

TABLE 3

RELATIVE PERCENT TIME SPENT ON DUTIES BY SPECIALTY JOBS
(GENERAL PROGRAMMING CLUSTER)

DUTIES		GENERAL PROGRAMMING CLUSTER (STG082) (N=686)	Systems Programming Job (STG145) (N=256)	Senior Systems Programming Job (STG149) (N=329)	Data Base Administration Job (STG232) (N=64)
A	PERFORMING GENERAL COMMUNICATIONS-COMPUTER SYSTEM ACTIVITIES	13	13	13	15
B	PERFORMING SYSTEMS PLANNING AND DESIGN ACTIVITIES	14	12	15	19
C	PERFORMING SOFTWARE DEVELOPMENT, IMPLEMENTATION, AND MAINTENANCE ACTIVITIES	44	58	38	25
D	PERFORMING SOFTWARE TESTING, QUALITY ASSURANCE, AND CONFIGURATION MANAGEMENT ACTIVITIES	9	8	12	3
E	PERFORMING DATA BASE ACTIVITIES	6	3	4	24
F	MAINTAINING SECURITY	2	1	3	1
G	PERFORMING CONTRACTING ACTIVITIES	1	1	1	1
H	PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	6	1	8	6
I	PERFORMING TRAINING ACTIVITIES	3	1	4	4
J	PERFORMING GENERAL ADMINISTRATIVE OR SYSTEMS DOCUMENTATION ACTIVITIES	1	1	1	1
K	PERFORMING GENERAL SUPPLY AND EQUIPMENT ACTIVITIES	1	1	1	1

TABLE 3 (CON'T)

RELATIVE PERCENT TIME SPENT ON DUTIES BY SPECIALTY JOBS
(SYSTEMS/NETWORK ADMINISTRATION CLUSTER)

DUTIES		SYS/NET ADMIN CLUSTER (STG053) (N=243)	Help Desk Technician Job (STG079) (N=76)	Sys/Net Admin Job (STG174) (N=119)	Sys/Net Security Job (STG170) (N=18)	Supply Job (STG155) (N=14)
A	PERFORMING GENERAL COMMUNICATIONS-COMPUTER SYSTEM ACTIVITIES	45	65	38	33	30
B	PERFORMING SYSTEMS PLANNING AND DESIGN ACTIVITIES	8	5	11	5	3
C	PERFORMING SOFTWARE DEVELOPMENT, IMPLEMENTATION, AND MAINTENANCE ACTIVITIES	11	9	13	5	4
D	PERFORMING SOFTWARE TESTING, QUALITY ASSURANCE, AND CONFIGURATION MANAGEMENT ACTIVITIES	8	5	9	4	3
E	PERFORMING DATA BASE ACTIVITIES	2	1	3	1	1
F	MAINTAINING SECURITY	9	6	7	31	12
G	PERFORMING CONTRACTING ACTIVITIES	1	1	1	1	3
H	PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	6	2	8	7	6
I	PERFORMING TRAINING ACTIVITIES	2	1	3	2	3
J	PERFORMING GENERAL ADMINISTRATIVE OR SYSTEMS DOCUMENTATION ACTIVITIES	2	1	2	6	2
K	PERFORMING GENERAL SUPPLY AND EQUIPMENT ACTIVITIES	6	4	5	5	33

TABLE 3 (CON'T)

RELATIVE PERCENT TIME SPENT ON DUTIES BY SPECIALTY JOBS
(MANAGEMENT CLUSTER)

DUTIES		MANAGEMENT CLUSTER (STG128) (N=127)	Senior Sys/Net Admin Job (STG367) (N=8)	AWACS Systems Programming Job (STG226) (N=12)	Senior Management Job (STG162) (N=83)
A	PERFORMING GENERAL COMMUNICATIONS-COMPUTER SYSTEM ACTIVITIES	16	45	14	10
B	PERFORMING SYSTEMS PLANNING AND DESIGN ACTIVITIES	7	6	4	7
C	PERFORMING SOFTWARE DEVELOPMENT, IMPLEMENTATION, AND MAINTENANCE ACTIVITIES	9	10	14	9
D	PERFORMING SOFTWARE TESTING, QUALITY ASSURANCE, AND CONFIGURATION MANAGEMENT ACTIVITIES	6	3	5	7
E	PERFORMING DATA BASE ACTIVITIES	1	4	5	1
F	MAINTAINING SECURITY	6	0	18	4
G	PERFORMING CONTRACTING ACTIVITIES	1	0	1	1
H	PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	37	25	25	43
I	PERFORMING TRAINING ACTIVITIES	11	6	10	11
J	PERFORMING GENERAL ADMINISTRATIVE OR SYSTEMS DOCUMENTATION ACTIVITIES	5	1	3	5
K	PERFORMING GENERAL SUPPLY AND EQUIPMENT ACTIVITIES	1	0	1	2

TABLE 3 (CON'T)

RELATIVE PERCENT TIME SPENT ON DUTIES BY SPECIALTY JOBS
(INDEPENDENT JOBS)

DUTIES		QA / Testing Job (STG203) (N=36)	Config Mngmnt Job (STG140) (N=19)	Formal Training Job (STG214) (N=16)
A	PERFORMING GENERAL COMMUNICATIONS-COMPUTER SYSTEM ACTIVITIES	19	16	12
B	PERFORMING SYSTEMS PLANNING AND DESIGN ACTIVITIES	8	8	8
C	PERFORMING SOFTWARE DEVELOPMENT, IMPLEMENTATION, AND MAINTENANCE ACTIVITIES	22	18	15
D	PERFORMING SOFTWARE TESTING, QUALITY ASSURANCE, AND CONFIGURATION MANAGEMENT ACTIVITIES	25	43	4
E	PERFORMING DATA BASE ACTIVITIES	1	1	1
F	MAINTAINING SECURITY	5	5	1
G	PERFORMING CONTRACTING ACTIVITIES	1	1	1
H	PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	10	3	12
I	PERFORMING TRAINING ACTIVITIES	5	1	41
J	PERFORMING GENERAL ADMINISTRATIVE OR SYSTEMS DOCUMENTATION ACTIVITIES	3	3	3
K	PERFORMING GENERAL SUPPLY AND EQUIPMENT ACTIVITIES	1	1	2

TABLE 4

SELECTED BACKGROUND DATA FOR SPECIALTY JOBS
(GENERAL PROGRAMMING CLUSTER)

	GENERAL PROGRAMMING CLUSTER (STG082)	Systems Programming Job (STG145)	Senior Systems Programming Job (STG149)	Data Base Administration Job (STG232)
NUMBER IN GROUP	686	256	329	64
PERCENT OF SAMPLE	50	19	24	5
PERCENT IN CONUS	93	95	92	91
DAFSC DISTRIBUTION:				
3C032	15%	22%	11%	6%
3C052	56%	64%	52%	45%
3C072	29%	14%	37%	49%
PAYGRADE DISTRIBUTION				
E-1 to E-3	16%	27%	10%	4%
E-4	26%	36%	19%	25%
E-5	29%	24%	33%	22%
E-6	17%	9%	21%	33%
E-7	12%	4%	17%	16%
AVERAGE MONTHS IN CAREER FIELD	71	55	81	77
AVERAGE MONTHS TAFMS	118	85	138	144
PERCENT IN FIRST ENLISTMENT (1-48 MOS TAFMS)	31	47	18	19
PERCENT SUPERVISING	35	13	51	39
AVERAGE NUMBER OF TASKS PERFORMED	85	45	123	71

TABLE 4 (CON'T)

SELECTED BACKGROUND DATA FOR SPECIALTY JOBS
(SYSTEM/NETWORK ADMINISTRATION CLUSTER)

	SYS/NET ADMIN CLUSTER (STG053)	Help Desk Technician Job (STG079)	Sys/Net Admin Job (STG174)	Sys/Net Security Job (STG170)	Supply Job (STG155)
NUMBER IN GROUP	243	76	119	18	14
PERCENT OF SAMPLE	18	6	9	1	1
PERCENT IN CONUS	80	83	80	83	86
DAFSC DISTRIBUTION:					
3C032	7%	11%	6%	6%	14%
3C052	59%	67%	54%	50%	72%
3C072	34%	22%	40%	44%	14%
PAYGRADE DISTRIBUTION					
E-1 to E-3	18%	31%	9%	11%	14%
E-4	21%	22%	18%	28%	43%
E-5	30%	30%	32%	22%	29%
E-6	21%	17%	26%	28%	0%
E-7	10%	0%	15%	11%	14%
AVERAGE MONTHS IN CAREER FIELD	80	57	94	70	89
AVERAGE MONTHS TAFMS	128	98	146	135	112
PERCENT IN FIRST ENLISTMENT (1-48 MOS TAFMS)	25	43	14	17	21
PERCENT SUPERVISING	19	12	27	17	7
AVERAGE NUMBER OF TASKS PERFORMED	64	24	99	49	27

TABLE 4 (CON'T)

SELECTED BACKGROUND DATA FOR SPECIALTY JOBS
(MANAGEMENT CLUSTER)

	MANAGEMENT CLUSTER (STG128)	Senior Sys/Net Administration Job (STG367)	AWACS Systems Programming Job (STG226)	Senior Management Job (STG162)
NUMBER IN GROUP	127	8	12	83
PERCENT OF SAMPLE	9	1	1	6
PERCENT IN CONUS	87	88	83	87
DAFSC DISTRIBUTION:				
3C032	2%	0%	0%	2%
3C052	30%	25%	50%	17%
3C072	68%	75%	50%	81%
PAYGRADE DISTRIBUTION				
E-1 to E-3	0%	0%	0%	0%
E-4	4%	0%	0%	2%
E-5	18%	12%	59%	7%
E-6	45%	63%	33%	46%
E-7	33%	25%	8%	45%
AVERAGE MONTHS IN CAREER FIELD	102	104	98	112
AVERAGE MONTHS TAFMS	186	182	160	197
PERCENT IN FIRST ENLISTMENT (1-48 MOS TAFMS)	2	0	0	0
PERCENT SUPERVISING	91	100	100	88
AVERAGE NUMBER OF TASKS PERFORMED	62	43	58	67

TABLE 4 (CON'T)

SELECTED BACKGROUND DATA FOR SPECIALTY JOBS
(INDEPENDENT JOBS)

	QA/Testing Job (STG203)	Configuration Mgmt Job (STG140)	Formal Training Job (STG214)
NUMBER IN GROUP	36	19	16
PERCENT OF SAMPLE	3	1	1
PERCENT IN CONUS	100	95	75
DAFSC DISTRIBUTION:			
3C032	11%	16%	0%
3C052	56%	63%	44%
3C072	33%	21%	56%
PAYGRADE DISTRIBUTION			
E-1 to E-3	19%	11%	0%
E-4	17%	26%	13%
E-5	39%	58%	31%
E-6	14%	0%	31%
E-7	11%	5%	25%
AVERAGE MONTHS IN CAREER FIELD	71	76	130
AVERAGE MONTHS TAFMS	125	116	180
PERCENT IN FIRST ENLISTMENT (1-48 MOS TAFMS)	23	26	6
PERCENT SUPERVISING	44	11	31
AVERAGE NUMBER OF TASKS PERFORMED	78	52	56

Comparison of Specialty Jobs to Previous Survey

Compared to the survey conducted in 1995, there is some change to note, yet task performance indicates a strong sense of stability within the career field. Table 5 shows similarity between specialty jobs identified in the previous analysis and the jobs identified in the current analysis.

In this survey, members did not clearly break into a security cluster or contracting job, as they did in 1995. Although these related tasks still exist and performance is observed, they do not clearly lump together by members to support an identifiable group. To note, a security job was identified within the Systems/Network Administration Cluster. This time, configuration management did clearly identify as a job being performed by some members, whereas it did not last time. Other changes are merely semantic in nature and based on analyst observations within the career field and how members identified themselves in the survey.

TABLE 5

SPECIALTY JOBS COMPARISON BETWEEN CURRENT AND 1995 SURVEY

CURRENT SURVEY (N=1,370)	1995 SURVEY (N=1,827)
GENERAL PROGRAMMING CLUSTER (N=686)	GENERAL PROGRAMMING CLUSTER (N=1,120)
SYSTEMS/NETWORK ADMINISTRATION CLUSTER (N=243)	SMALL COMPUTER PROGRAMMING CLUSTER (N=386)
MANAGEMENT CLUSTER (N=127)	SUPERVISION CLUSTER (N=148)
QA AND TESTING JOB (N=36)	TEST ANALYSIS JOB (N=17)
CONFIGURATION MGMT JOB (N=19)	NOT IDENTIFIED
FORMAL TRAINING JOB (N=16)	RESIDENT COURSE INSRUCTION JOB (N=18)
NOT IDENTIFIED	SECURITY CLUSTER (N=62)
NOT IDENTIFIED	CONTRACTING JOB (N=16)

Summary

Structure analysis identified three clusters and three jobs. Fifty percent of the survey sample fall within the General Programming Cluster, comprising the core work of the career field. The three jobs within this cluster distinguish themselves through type and quantity of tasks performed.

Data indicates that members enter the career field and largely work within the Systems Programming Job within the General Programming Cluster. As they progress, they transition into the Senior Systems Programming Job and the Management Cluster.

Stability of job activity is noted, when compared to the last survey conducted in 1995. The largest difference was seen in members performing more Systems and Network Administration type activity, as well as more operator type activity.

ANALYSIS OF DAFSC GROUPS

An analysis of DAFSC groups, in conjunction with the analysis of the career ladder structure, is an important part of each occupational survey. The DAFSC analysis identifies differences in tasks performed at the various skill levels. This information may then be used to evaluate how well career ladder documents, such as the AFMAN 36-2108 *Airman Classification,* Specialty Description and the Career Field Education and Training Plan (CFETP), reflect what career ladder personnel are actually doing in the field.

The distribution of skill-level groups across the career ladder clusters and jobs is displayed in Table 6, while Table 7 offers another perspective by displaying the relative percent time spent on each duty across skill-level groups. A somewhat typical pattern of progression is noted within the AFSC 3C0X2 career ladder. Personnel at the 3- and 5-skill levels work in the technical jobs of the career ladder and spend most of their time on technical tasks. As incumbents move up to the 7-skill level they begin to perform supervisory tasks, but still spend some of their time performing the technical tasks of the career ladder.

Skill-Level Descriptions

DAFSC 3C032. Representing 13 percent of the survey sample, these 174 airmen perform an average of 51 tasks. Sixty-one percent of this group work in the General Programming Cluster, with an additional 11 percent performing in the Systems/Network Administration Cluster (see Table 6).

Table 7 reflects the percent time spent on duties by DAFSC 3C032 personnel. At the 3-skill level, their time is well distributed among the technical duties of the career ladder, to include software development, implementation, and maintenance. Representative tasks performed by these members are listed in Table 8.

DAFSC 3C052. The 759 members of this group account for 55 percent of the survey sample, performing an average of 62 tasks. Fifty-one percent work in the General Programming Cluster, with an additional 19 percent working in the Systems/Network Administration Cluster (see Table 6).

Table 7 provides a comparison of the relative time spent on duties at the 5-skill level. This table reflects a pattern similar to the 3-skill level, with fairly even distribution of members performing the technical duties of the career ladder. As shown in this table, 5-skill level personnel begin to perform the supervisory tasks of Duty H.

Table 9 lists representative tasks performed by DAFSC 3C052 personnel, largely technical in nature. Table 10 reflects those tasks which best differentiate the 3-skill levels from their 5-skill level counterparts. This table shows the 3-skill levels perform a few technical tasks slightly more frequently than the 5-skill levels, indicating that nearly all of the tasks a 3-skill level perform are

also performed by their 5-skill level counterparts. On the other side, as expected, 5-skill levels perform a range of management and supervisory tasks more frequently than the 3-skill level.

DAFSC 3C072. These 436 members perform an average of 82 tasks and represent 32 percent of the survey sample. Table 6 shows the highest percentage of members are in the General Programming Cluster, and another 20 percent fall within the Management Cluster.

Table 7 reflects the percent time spent on duties by DAFSC 3C072 members. It can be seen from this table the decrease in the amount of time spent by members performing the technical activities of Duty C, compared to the 3- and 5-skill level members, while increasing the time spent performing the Management and Supervisory tasks of Duty H.

Representative tasks performed by 7-skill level members are reflected in Table 11. Table 12 reflects tasks which best differentiate between 5- and 7-skill levels. This table clearly shows the higher focus of management and supervisory tasks at the 7-skill level than the 5-skill level.

Summary

Progression in the Communications - Computer Systems Programming career ladder follows a somewhat regular pattern of highly technical job focus at the lower skill levels, with a broadening into supervision and management at the 7-skill level. An emphasis is clearly seen performing primarily the core job of the career ladder at the 3- and 5-skill levels, with broadening into supervisory functions at the 7-skill level.

TABLE 6

DISTRIBUTION OF DAFSC GROUP MEMBERS ACROSS SPECIALTY JOBS
(PERCENT RESPONDING)

SPECIALTY JOBS	3C032 (N=174)	3C052 (N=759)	3C072 (N=436)
GENERAL PROGRAMMING CLUSTER	61	51	44
SYSTEMS/NETWORK ADMINISTRATION CLUSTER	11	19	19
MANAGEMENT CLUSTER	1	5	20
QUALITY ASSURANCE AND TESTING JOB	3	3	3
CONFIGURATION MANAGEMENT JOB	2	2	1
FORMAL TRAINING JOB	1	1	2
NOT GROUPED	21	19	11

TABLE 7

RELATIVE PERCENT TIME SPENT ON DUTIES BY DAFSC GROUPS

DUTIES		3C032 (N=174)	3C052 (N=759)	3C072 (N=436)
A	PERFORMING GENERAL COMMUNICATIONS-COMPUTER SYSTEM ACTIVITIES	18	22	19
B	PERFORMING SYSTEMS PLANNING AND DESIGN ACTIVITIES	13	12	12
C	PERFORMING SOFTWARE DEVELOPMENT, IMPLEMENTATION, AND MAINTENANCE ACTIVITIES	43	34	23
D	PERFORMING SOFTWARE TESTING, QUALITY ASSURANCE, AND CONFIGURATION MANAGEMENT ACTIVITIES	10	10	10
E	PERFORMING DATA BASE ACTIVITIES	5	4	3
F	MAINTAINING SECURITY	3	5	5
G	PERFORMING CONTRACTING ACTIVITIES	1	0	1
H	PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	2	6	17
I	PERFORMING TRAINING ACTIVITIES	2	3	6
J	PERFORMING GENERAL ADMINISTRATIVE OR SYSTEMS DOCUMENTATION ACTIVITIES	1	2	2
K	PERFORMING GENERAL SUPPLY AND EQUIPMENT ACTIVITIES	2	2	2

TABLE 8

REPRESENTATIVE TASKS PERFORMED BY 3C032 PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=174)
C0131	Compile or assemble programs	65
C0135	Debug computer programs	65
C0122	Code computer programs in high-level compiler languages	62
C0152	Participate in peer reviews	62
C0134	Correct syntax errors	57
A0005	Assist customers in resolving computer software malfunctions or problems	52
C0128	Code error handling routines	51
C0150	Modify software applications	51
C0118	Analyze source code listings	51
C0138	Desk check programs	51
C0153	Participate in software reviews	47
C0136	Design main program algorithms or logic	46
C0155	Perform high-level software design	43
A0062	Transfer programs or data from one media to another media	41
C0145	Explain software errors to customers	40
C0172	Review software problem reports	39
C0127	Code data base access routines	38
B0070	Analyze data base requirements	38
B0087	Design input or output formats	37
A0063	Troubleshoot causes of machine stops or malfunctions, other than peripheral equipment	36
C0114	Analyze data bases	36
A0033	Perform file maintenance	35
C0154	Participate in structured walk-throughs of software programs	35
C0137	Design problem solutions using aids, such as program design languages, structure charts, or data flow diagrams	34

* Average Number of Tasks Performed - 51

TABLE 9

REPRESENTATIVE TASKS PERFORMED BY 3C052 PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=759)
A0005	Assist customers in resolving computer software malfunctions or problems	61
C0135	Debug computer programs	60
C0131	Compile or assemble programs	50
C0134	Correct syntax errors	50
C0118	Analyze source code listings	48
C0122	Code computer programs in high-level compiler languages	46
C0138	Desk check programs	46
C0150	Modify software applications	46
C0128	Code error handling routines	45
C0152	Participate in peer reviews	44
A0062	Transfer programs or data from one media to another media	42
C0136	Design main program algorithms or logic	41
C0153	Participate in software reviews	41
B0070	Analyze data base requirements	41
A0006	Check operational status of equipment	41
A0033	Perform file maintenance	41
A0063	Troubleshoot causes of machine stops or malfunctions, other than peripheral equipment	39
A0044	Recover from abnormal terminations	38
I0330	Conduct on-the-job training (OJT)	38
F0247	Escort visitors through facilities	38
C0155	Perform high-level software design	38
C0145	Explain software errors to customers	38
C0127	Code data base access routines	37
C0172	Review software problem reports	36
A0013	Edit input or output data	36
B0073	Analyze methods of accessing data bases	36
B0087	Design input or output formats	35
A0049	Review communications-computer systems requirements documents (CSRDs)	34
E0236	Write data base programs	34

* Average Number of Tasks Performed – 62

TABLE 10

TASKS WHICH BEST DIFFERENTIATE BETWEEN
DAFSCs 3C032 AND 3C052 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS		3C032 (N=174)	3C052 (N=759)	DIFF
C0152	Participate in peer reviews	62	44	18
C0122	Code computer programs in high-level compiler languages	62	46	16
C0131	Compile or assemble programs	65	50	15
H0287	Counsel subordinates concerning personnel matters	6	26	-20
H0284	Conduct supervisory performance feedback sessions	7	23	-16
F0247	Escort visitors through facilities	22	38	-16
A0009	Correct stoppages or malfunctions on communications- computer systems peripheral equipment	17	32	-15
H0301	Establish performance standards for subordinates	7	22	-15
A0006	Check operational status of equipment	26	41	-15
H0322	Write or endorse military performance reports	7	21	-14
A0002	Analyze statistical data	9	23	-14
H0323	Write recommendations for awards or decorations	6	20	-14
A0049	Review communications-computer systems requirements documents	21	34	-13
H0305	Evaluate personnel for compliance with performance standards	6	19	-13
H0295	Develop or establish work methods or procedures	9	22	-13
A0056	Set or reset computer time clocks	12	25	-13
H0289	Determine or establish work assignments or priorities	10	23	-13
I0338	Evaluate progress of trainees	11	24	-13
H0310	Interpret policies, directives, or procedures for subordinates	5	18	-13
I0330	Conduct on-the-job training	26	38	-13
I0331	Counsel trainees on training progress	11	23	-12
I0341	Maintain training records or files	13	24	-11
A0003	Assign file or disk space to users or projects	10	21	-11

TABLE 11

REPRESENTATIVE TASKS PERFORMED BY 3C072 PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=436)
A0005	Assist customers in resolving computer software malfunctions or problems	68
H0287	Counsel subordinates concerning personal matters	55
H0289	Determine or establish work assignments or priorities	54
H0323	Write recommendations for awards or decorations	54
H0284	Conduct supervisory performance feedback sessions	51
I0330	Conduct on-the-job training (OJT)	51
H0322	Write or indorse military performance reports	50
A0062	Transfer programs or data from one media to another media	49
A0006	Check operational status of equipment	48
C0135	Debug computer programs	47
H0301	Establish performance standards for subordinates	47
H0305	Evaluate personnel for compliance with performance standards	47
H0310	Interpret policies, directives, or procedures for subordinates	47
H0295	Develop or establish work methods or procedures	46
I0341	Maintain training records or files	45
I0338	Evaluate progress of trainees	44
A0044	Recover from abnormal terminations	44
H0281	Conduct general meetings, such as staff meetings, briefings, conferences, or workshops	44
A0049	Review communications-computer systems requirements documents (CSRDs)	44
B0070	Analyze data base requirements	43
C0145	Explain software errors to customers	43
B0101	Evaluate communications-computer systems change requests	43
C0153	Participate in software reviews	43
H0296	Develop or establish work schedules	42
C0138	Desk check programs	42
H0286	Conduct supervisory orientations for newly assigned personnel	42
A0050	Review communications-computer systems software release or patch documentation	42
A0063	Troubleshoot causes of machine stops or malfunctions, other than peripheral equipment	41
C0150	Modify software applications	41

* Average Number of Tasks Performed - 82

TABLE 12

TASKS WHICH BEST DIFFERENTIATE BETWEEN
DAFSCs 3C052 AND 3C072 PERSONNEL
(PERCENT MEMBERS PERFORMING)

TASKS		3C052 (N=759)	3C072 (N=436)	DIFF
H0323	Write recommendations for awards or decorations	20	54	-34
H0289	Determine or establish work assignments or priorities	23	54	-31
H0287	Counsel subordinates concerning personnel matters	26	55	-29
H0310	Interpret policies, directives, or procedures for subordinates	26	55	-29
H0322	Write or indorse military performance reports	21	50	-29
H0284	Conduct supervisory performance feedback sessions	23	51	-28
H0296	Develop or establish work schedules	14	42	-28
H0317	Schedule personnel for temporary duty assignments, leaves, or passes	13	41	-28
H0281	Conduct general meetings, such as staff meetings, briefings, conferences, or workshops	16	44	-28
H0286	Conduct supervisory orientations for newly assigned personnel	14	42	-28
H0305	Evaluate personnel for compliance with performance standards	20	47	-27
H0288	Determine or establish logistics requirements, such as personnel, equipment, tools, parts, supplies, or workspace	12	38	-26
H0301	Establish performance standards for subordinates	22	47	-25
J0348	Initiate requests for TDY orders	15	39	-24
H0295	Develop or establish work methods or procedures	22	46	-24
H0279	Assign personnel to work areas or duty positions	5	28	-23
I0327	Brief personnel concerning training programs or matters	17	39	-22
H0320	Write job or position descriptions	9	31	-22
H0280	Assign sponsors for newly assigned personnel	3	23	-20
I0341	Maintain training records or files	24	44	-20
H0309	Initiate actions required due to substandard performance of personnel	15	35	-20
I0338	Evaluate progress of trainees	25	44	-19
I0331	Counsel trainees on training progress	23	42	-19

TRAINING ANALYSIS

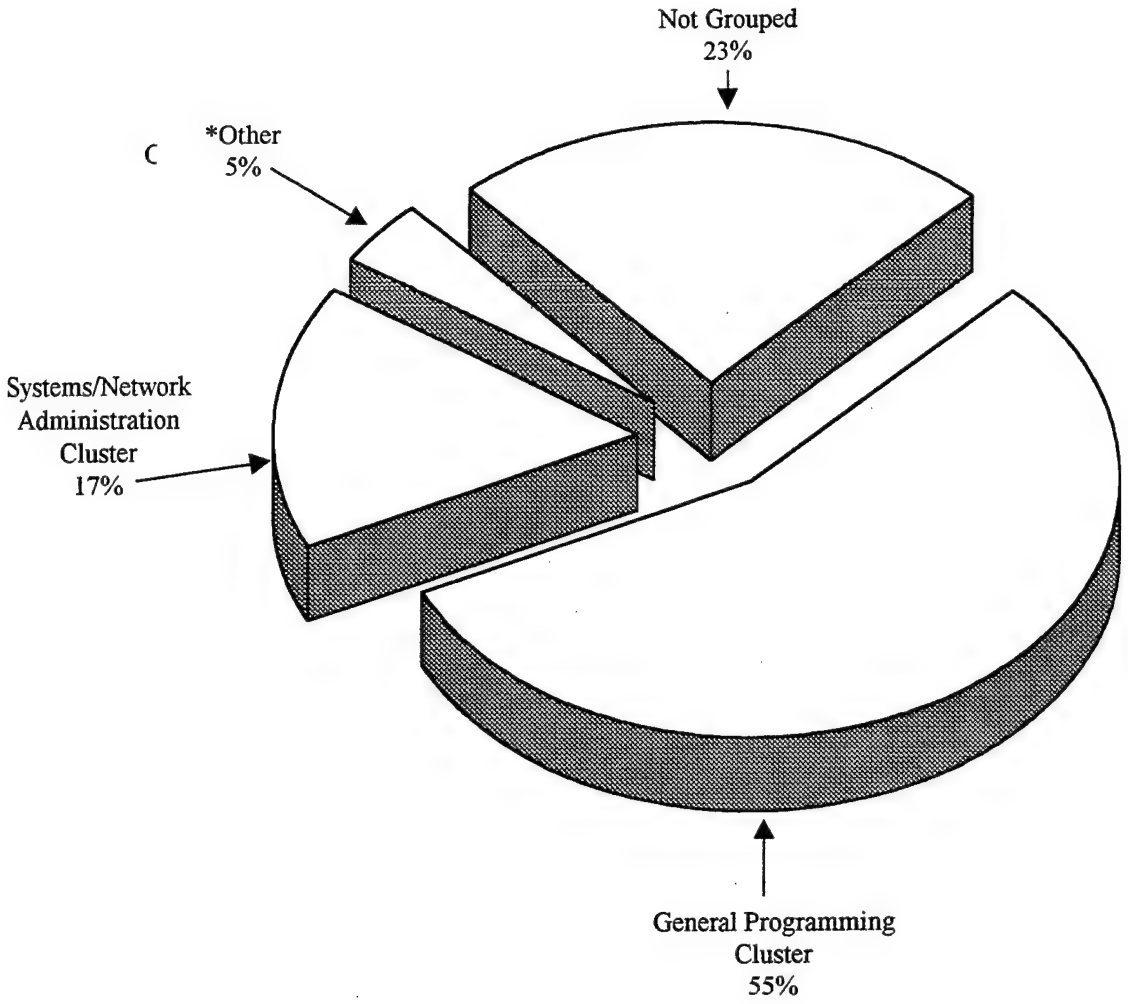
Occupational survey data are one of many sources of information which can be used to assist in the development of a training program relevant to the needs of personnel in their first enlistment. Factors which may be used in evaluating training include the overall description of the work being performed by first-job or first-enlistment personnel and their overall distribution across career ladder jobs, percentages of first-job (1-24 months TAFMS) or first-enlistment (1-48 months TAFMS) members performing specific tasks, as well as TE and TD ratings (Previously explained in the **SURVEY METHODOLOGY** section).

First-Enlistment Personnel

This survey has 375 members in their first-enlistment (1-48 months TAFMS), representing 27 percent of the survey sample. Figure 2 reflects the distribution of first-enlistment personnel within the career ladder. Table 13 displays the relative time spent on duties by first-enlistment personnel. As seen in this table, first-enlistment personnel spend 42 percent of their time performing the Software Development, Implementation, and Maintenance tasks of Duty C, with 22 percent of time spent across the General Communications – Computer System activities of Duty A. Table 14 lists representative tasks performed by these first-enlistment personnel and reflects the technical task focus of these personnel.

Table 15 reflects the Levels of Systems programmed by first-enlistment respondents, while Table 16 lists the Programming Languages used by first-enlistment respondents.

DISTRIBUTION OF 3C0X2 FIRST-ENLISTMENT PERSONNEL ACROSS SPECIALTY JOBS (N = 375)



* Other includes QA and Testing Job (2%), Management Cluster (1%), Configuration Management Job (1%), and Formal Training Job (1%)

FIGURE 2

TABLE 13

RELATIVE PERCENT TIME SPENT ON DUTIES BY
FIRST-ENLISTMENT PERSONNEL
(N=375)

	DUTIES	PERCENT TIME SPENT
A	PERFORMING GENERAL COMMUNICATIONS-COMPUTER SYSTEM ACTIVITIES	22
B	PERFORMING SYSTEMS PLANNING AND DESIGN ACTIVITIES	12
C	PERFORMING SOFTWARE DEVELOPMENT, IMPLEMENTATION, AND MAINTENANCE ACTIVITIES	42
D	PERFORMING SOFTWARE TESTING, QUALITY ASSURANCE, AND CONFIGURATION MANAGEMENT ACTIVITIES	9
E	PERFORMING DATA BASE ACTIVITIES	4
F	MAINTAINING SECURITY	4
G	PERFORMING CONTRACTING ACTIVITIES	0
H	PERFORMING MANAGEMENT AND SUPERVISORY ACTIVITIES	2
I	PERFORMING TRAINING ACTIVITIES	2
J	PERFORMING GENERAL ADMINISTRATIVE OR SYSTEMS DOCUMENTATION ACTIVITIES	1
K	PERFORMING GENERAL SUPPLY AND EQUIPMENT ACTIVITIES	2

TABLE 14

REPRESENTATIVE TASKS PERFORMED BY AFSC 3C0X2
FIRST-ENLISTMENT PERSONNEL

TASKS		PERCENT MEMBERS PERFORMING (N=375)
C0135	Debug computer programs	64
A0005	Assist customers in resolving computer software malfunctions or problems	57
C0131	Compile or assemble programs	57
C0152	Participate in peer reviews	54
C0122	Code computer programs in high-level compiler languages	54
C0134	Correct syntax errors	53
C0128	Code error handling routines	48
C0118	Analyze source code listings	48
C0150	Modify software applications	47
C0138	Desk check programs	46
C0153	Participate in software reviews	44
C0136	Design main program algorithms or logic	41
A0062	Transfer programs or data from one media to another media	41
C0155	Perform high-level software design	39
C0127	Code data base access routines	38
A0033	Perform file maintenance	37
C0145	Explain software errors to customers	37
C0133	Correct data entry errors	36
B0070	Analyze data base requirements	36
A0063	Troubleshoot causes of machine stops or malfunctions, other than peripheral equipment	36
B0087	Design input or output formats	34
B0073	Analyze methods of accessing data bases	34
C0172	Review software problem reports	34
A0013	Edit input or output data	34
A0006	Check operational status of equipment	34
E0236	Write data base programs	33
C0114	Analyze data bases	33
A0040	Prepare input or output data	33
C0158	Perform object-oriented design	32

* Average Number of Tasks Performed - 49

TABLE 15

LEVELS OF SYSTEMS PROGRAMMED BY
FIRST-ENLISTMENT AFSC 3C0X2 PERSONNEL

LEVEL OF SYSTEM	1ST ENL (N=375)
Embedded System	3
Local Area Networks or Client Servers	33
Mainframes	20
Minicomputers	4
Personal Computers	45
Specialized Computers	6
Work Stations	21

TABLE 16

PROGRAMMING LANGUAGES USED BY
FIRST-ENLISTMENT AFSC 3C0X2 PERSONNEL

PROGRAMMING LANGUAGE	1ST ENL (N=375)
Ada	5
Assembler	7
BASIC	3
Fourth Generation, such as Visual C++	21
COBOL	16
Data Base	42
Event-driven	26
Fifth Generation, such as Prolog	0
Fortran	5
JOVIAL	3
Pascal	2
PL/1	2
REXX	3
Web-based, such as HTML	30

Training Emphasis (TE) and Task Difficulty (TD) Data

TE and TD data are secondary factors that can assist technical school personnel in deciding which tasks should be emphasized in entry-level training. These ratings, based on the judgments of senior career ladder NCOs working at operational units in the field, are collected to provide training personnel with a rank-ordering of those tasks in the JI considered important for first-enlistment personnel training. When combined with data on the percentages of first-enlistment personnel performing tasks, comparisons can then be made to determine if training adjustments are necessary. For example, tasks receiving high ratings on both task factors, accompanied by moderate to high percentages performing, may warrant resident training. Those tasks receiving high task factor ratings, but low percentages performing, may be more appropriately planned for OJT programs within the career ladder. Low task factor ratings may highlight tasks best omitted from training for first-enlistment personnel, but this decision must be weighed against percentages of personnel performing the tasks, command concerns, and criticality of the tasks.

To assist technical school personnel, AFOMS has developed a computer program that incorporates these secondary factors and the percentage of first-enlistment personnel performing each task to produce an Automated Training Indicator (ATI) for each task. These indicators correspond to training decisions listed and defined in the Training Decision Logic Table found in Attachment 2, AETCI 36-2601, and allows course personnel to quickly focus their attention on those tasks which are most likely to qualify for initial resident course consideration.

Table 17 presents tasks with the highest TE ratings for AFSC 3C0X2 first-enlistment airmen, while Table 18 displays those tasks AFSC 3C0X2 raters judged to be most difficult to learn. For example, TE raters (refer to Table 17) reported that tasks such as coding computer programs require a high degree of training emphasis and, from the data, many airmen in their first job and within their first enlistment are performing these tasks. Table 18 shows TD raters reported coding computer programs, as well as analyzing system and program dumps to be among some of the most difficult tasks to learn. In some cases, due to the low numbers of individuals performing these types of tasks, they would be inappropriate for inclusion in a resident curriculum and are more appropriately taught as OJT items.

Various lists of tasks, accompanied by TE and TD ratings, and where appropriate, ATI information, are contained in the TRAINING EXTRACT package and should be reviewed in detail by training school personnel. (For a more detailed explanation of TE and TD ratings, see Task Factor Administration in the **SURVEY METHODOLOGY** section of this report.)

TABLE 17

TASKS RATED HIGHEST IN TRAINING EMPHASIS

TASKS		TNG EMP*	PERCENT MEMBERS PERFORMING 1ST JOB (N=113)	PERCENT MEMBERS PERFORMING 1ST ENL (N =375)	TASK DIFF**
C0125	Code computer programs using fourth generation languages, such as Visual C++	7.15	33	32	6.84
C0135	Debug computer programs	7.12	60	64	6.38
C0122	Code computer programs in high-level compiler languages	6.68	56	54	6.57
C0128	Code error handling routines	6.59	44	48	6.48
C0118	Analyze source code listings	6.10	46	48	6.18
C0127	Code data base access routines	5.98	37	38	6.44
C0134	Correct syntax errors	5.95	53	53	4.46
C0136	Design main program algorithms or logic	5.93	40	41	6.58
C0148	Incorporate reusable software components	5.83	27	29	5.25
C0131	Compile or assemble programs	5.78	60	57	4.96
C0138	Desk check programs	5.76	47	46	5.45
C0158	Perform object-oriented design	5.76	27	32	6.71
C0150	Modify software applications	5.73	42	47	5.77
C0137	Design problem solutions using aids, such as program design languages, structure charts, or data flow diagrams	5.46	25	26	6.06
C0156	Perform low-level software design	5.46	19	29	6.27
C0154	Participate in structured walk-throughs of software programs	5.41	27	29	4.81
C0120	Code applications programs using data manipulation languages	5.34	27	31	6.16
C0157	Perform object-oriented analysis	5.32	16	22	6.70
D0201	Maintain source code listings	5.17	23	25	4.29
C0123	Code computer programs in translator or interpreter languages	5.17	11	19	6.32
C0176	Write data base run stream utilizing data base routines, such as query languages	5.17	25	26	5.60
B0070	Analyze data base requirements	5.05	27	36	6.38
B0068	Analyze communications – computer systems output requirements	4.95	26	26	5.73
C0153	Participate in software reviews	4.93	41	44	4.70
C0152	Participate in peer reviews	4.83	49	54	4.57
C0141	Develop software prototypes	4.80	22	25	6.07

* Average TE Rating is 2.47, and Standard Deviation is 1.46 (High TE = 3.93)

** Average TD Rating is 5.00, and Standard Deviation is 6.00 (High TD = 6.00)

TABLE 18

TASKS RATED HIGHEST IN TASK DIFFICULTY

TASKS		TASK DIFF*	PERCENT MEMBERS PERFORMING: 1ST JOB (N=113)	1ST ENL (N=375)	3-SKL LVL (N=174)	5-SKL LVL (N=759)	7-SKL LVL (N=436)	TNG EMP**
C0121	Code computer programs in assembly languages	7.91	6	6	7	5	3	3.49
B0075	Analyze system dumps	7.65	12	14	16	16	15	3.54
C0117	Analyze program dumps	7.22	16	16	18	15	15	3.68
C0129	Code in network programming languages	7.15	8	13	14	15	10	4.39
B0085	Design data base specifications	7.09	19	27	29	29	30	3.78
B0084	Design communications – computer system software interface or integration specification	7.05	20	22	25	23	24	3.10
B0088	Design operating system interface or integration specification	7.04	9	10	11	13	14	3.07
G0271	Evaluate bids, quotations, or proposals for contract awards	6.85	5	2	2	3	10	.59
C0125	Code computer programs using fourth generation languages, such as Visual C++	6.84	33	32	32	33	27	7.15
B0089	Design record access and storage methods	6.78	17	15	19	20	19	3.56
C0158	Perform object-oriented design	6.71	27	32	29	29	22	5.76
C0157	Perform object-oriented analysis	6.70	16	22	22	25	20	5.32
B0095	Develop models to simulate functional requirements	6.67	13	13	13	11	14	3.63
C0124	Code computer programs using fifth generation languages, such as Prolog or Lisp	6.64	0	0	0	1	2	3.80
C0159	Perform rapid application deployment procedures	6.62	9	14	16	17	15	3.44
E0229	Evaluate DBMSs	6.60	4	7	7	10	15	2.93
C0136	Design main program algorithms or logic	6.58	40	41	46	41	36	5.93
C0122	Code computer programs in high-level compiler languages	6.57	56	54	62	46	33	6.68
B0104	Perform or participate in feasibility studies, such as cost, operational, or technical	6.56	15	13	16	19	32	2.27
E0236	Write data base programs	6.55	27	33	33	34	28	4.78
G0272	Evaluate contractor-provided change packages	6.53	2	2	3	3	8	1.39
C0128	Code error handling routines	6.48	44	48	51	45	33	6.59
B0106	Prepare conceptual data base diagrams	6.44	8	13	13	17	19	3.56
C0127	Code data base access routines	6.44	37	38	38	37	32	5.98
B0074	Analyze operating systems security requirements	6.41	14	18	22	25	33	3.22

* Average TD Rating is 5.00, and Standard Deviation is 6.00 (High TD = 6.00)

** Average TE Rating is 2.47, and Standard Deviation is 1.46 (High TE = 3.93)

Specialty Training Standard (STS)

A comprehensive review of STS 3C0X2, dated March 1997, compared STS items to survey data (based on the previously mentioned assistance from subject-matter experts in matching JI tasks to STS elements). STS elements containing general knowledge information, mandatory entries, subject-matter-knowledge-only requirements, or basic supervisory responsibilities were not examined. Task knowledge and performance elements of the STS were compared against the standard set forth in AETCI 36-2601 and AFI 36-2623 (i.e., include tasks performed by 20 percent or more of the personnel in a skill level [criterion group] of the AFS).

Overall, the STS is extremely well supported. Only one area, "9.b. (3) *Maintaining Software Support Libraries*," did not have the 20 percent support needed. This non-supported area, as well as the entire document should be reviewed in order to validate the findings and make any necessary adjustments.

Tasks not referenced to any element of the STS are listed at the end of the STS computer listing of the Training Extract. These tasks were reviewed to determine if there were any tasks concentrated around any particular function or job. There were only two significant technical tasks that were not matched to an STS element, which includes "C0152 Participating in peer reviews," and "A0005 Assisting customers in resolving computer software malfunctions or problems."

JOB SATISFACTION ANALYSIS

An examination of the job satisfaction indicators of various groups can give career ladder managers a better understanding of some of the factors which may affect the job performance of airmen in the career ladder. Attitude questions covering job interest, perceived utilization of talents and training, sense of accomplishment from work, and reenlistment intentions were included in the survey booklet to provide indications of job satisfaction.

Table 19 presents job satisfaction data for AFSC 3C0X2 TAFMS groups, together with TAFMS data for a comparative sample of Support career ladders surveyed in 1998. First-enlistment personnel (1-48 Mos TAFMS) rated perception of job interest, utilization of talents, and sense of accomplishment gained from work lower than the comparative sample. They also have much lower reenlistment intentions than the comparative sample. Second-enlistment personnel (4-8 years TAFMS) also rated all areas lower than the comparative sample, including reenlistment intentions. Career airmen (those over 8 years TAFMS), rated all areas lower than the comparative sample.

Table 20 paints a picture of job satisfaction over time. Greater stability is noted for the attitudinal questions regarding job interest, utilization of training and talents and sense of accomplishment gained from work. Intent to reenlist has dramatically shifted for first- and second-enlistees, plummeting by half into the mid- to high-twenties range. Reenlistment stability is noted for career airmen.

In Table 21, a review of the job satisfaction ratings for the specialty clusters and jobs identified in this survey reveals high job satisfaction for the core work of the career field within the General Programming Cluster, although a low intent to reenlist exists. Members within the Systems/Network Administration Cluster and Management Cluster are fairly content with the work they perform, although they indicate that their training is not very well utilized and they also have a low intent to reenlist.

When there are problems in a career ladder, survey respondents are free with write-in comments to complain about these perceived problems. Almost half of the survey sample used the write-in feature to convey some type of information, ranging from career-field criticisms and praise to identifying background questions and tasks that could have been added or deleted from the survey. Some criticisms were directed at programming personnel performing too many extraneous activities outside of the core competencies of the career field, such as computer operating and additional duty work. Another small critical trend indicated a decline in programming opportunities for career field personnel. Another trend that related to retention was the availability of civilian positions that offer better compensation. There were positive comments noted as well, to include general statements about the satisfaction received from performing programming work for the Air Force.

TABLE 19

COMPARISON OF JOB SATISFACTION INDICATORS BY TAFMS GROUPS (PERCENT MEMBERS RESPONDING)

	1-48 MOS TAFMS		49-96 MOS TAFMS		97+ MOS TAFMS	
	1998 3C0X2 (N=375)	COMP SAMPLE* (N=249)	1998 3C0X2 (N=208)	COMP SAMPLE* (N=190)	1998 3C0X2 (N=787)	COMP SAMPLE* (N=383)
EXPRESSED JOB INTEREST:						
INTERESTING	71	77	76	80	70	81
SO-SO	15	13	11	10	15	12
DULL	14	10	13	10	15	7
PERCEIVED UTILIZATION OF TALENTS:						
FAIRLY WELL TO PERFECTLY	79	84	81	82	76	83
LITTLE OR NOT AT ALL	21	16	19	18	24	17
PERCEIVED UTILIZATION OF TRAINING:						
FAIRLY WELL TO PERFECTLY	60	88	61	85	57	81
LITTLE OR NOT AT ALL	40	12	39	15	43	19
SENSE OF ACCOMPLISHMENT GAINED FROM WORK:						
SATISFIED	65	74	68	72	66	73
NEUTRAL	12	10	10	12	8	9
DISSATISFIED	23	16	22	16	26	18
REENLISTMENT INTENTIONS:						
YES, OR PROBABLY YES	24	47	29	56	51	72
NO, OR PROBABLY NO	76	53	71	44	19	11
PLAN TO RETIRE	0	0	0	0	30	17

* Comparative sample of Support career ladders surveyed in 1998 includes the 3AXXX, 3CXXX, 3EXXX, 3H0X1, 3M0X1, 3NXXX, 3P0X1, 3SXXX, 3U0X1, and 3VXXX

TABLE 20

COMPARISON OF CURRENT SURVEY AND PREVIOUS SURVEY BY TAFMS GROUPS
(PERCENT MEMBERS RESPONDING)

	1-48 MOS TAFMS		49-96 MOS TAFMS		97+ MOS TAFMS	
	1998 3C0X2 (N=375)	1995 3C0X2 (N=493)	1998 3C0X2 (N=208)	1995 3C0X2 (N=301)	1998 3C0X2 (N=787)	1995 3C0X2 (N=1,033)
EXPRESSED JOB INTEREST:						
INTERESTING	71	72	76	76	70	76
SO-SO	15	15	11	12	15	13
DULL	14	13	13	12	15	11
PERCEIVED UTILIZATION OF TALENTS:						
FAIRLY WELL TO PERFECTLY	79	78	81	80	76	79
LITTLE OR NOT AT ALL	21	22	19	20	24	21
PERCEIVED UTILIZATION OF TRAINING:						
FAIRLY WELL TO PERFECTLY	60	58	61	60	57	59
LITTLE OR NOT AT ALL	40	42	39	40	43	41
SENSE OF ACCOMPLISHMENT GAINED FROM WORK:						
SATISFIED	65	70	68	72	66	70
NEUTRAL	12	11	10	7	8	7
DISSATISFIED	23	19	22	21	26	23
REENLISTMENT INTENTIONS:						
YES, OR PROBABLY YES	24	61	29	65	51	50
NO, OR PROBABLY NO	76	39	71	35	19	10
PLAN TO RETIRE	0	0	0	0	30	40

TABLE 21

COMPARISON OF JOB SATISFACTION INDICATORS BY SPECIALTY JOBS
(PERCENT MEMBERS RESPONDING)

	General Programming Cluster (N=686)	Sys/Network Administration Cluster (N=243)	Management Cluster (N=127)	QA and Testing Job (N=36)	Config Management Job (N=19)	Formal Training Job (N=16)
EXPRESSED JOB INTEREST:						
INTERESTING	80	74	59	58	42	69
SO-SO	13	12	19	23	26	6
DULL	7	14	22	19	32	25
PERCEIVED UTILIZATION OF TALENTS:						
FAIRLY WELL TO PERFECTLY	86	88	65	72	63	75
LITTLE OR NOT AT ALL	14	12	35	28	37	25
PERCEIVED UTILIZATION OF TRAINING:						
FAIRLY WELL TO PERFECTLY	70	48	43	53	53	56
LITTLE OR NOT AT ALL	30	52	57	47	47	44
SENSE OF ACCOMPLISHMENT GAINED FROM WORK:						
SATISFIED	73	67	58	45	53	63
NEUTRAL	9	11	8	8	10	6
DISSATISFIED	18	22	34	47	37	31
REENLISTMENT INTENTIONS:						
YES, OR PROBABLY YES	38	42	51	47	58	25
NO, OR PROBABLY NO	46	38	17	42	32	31
WILL RETIRE	16	20	32	11	10	44

IMPLICATIONS

The Communications – Computer Systems Programming career ladder (AFSC 3C0X2) was surveyed to obtain current job and task data for use in examining training programs. Survey results are based on responses from 1,370 AFSC 3C0X2 personnel, 67 percent of the total personnel assigned, and 72 percent of the total personnel surveyed.

Survey results indicate that the present classification structure, as described in the latest specialty description, with the exception of Systems/Network Administration Cluster, reflects the jobs performed in this career ladder. Most personnel are distributed into the General Programming Cluster (50 percent.)

Personnel in the Communications – Computer Systems Programming career ladder follow a typical career progression pattern. Three- and 5-skill level personnel perform technical functions oriented toward general computer system programming activities. Seven-skill levels perform more supervisory and management tasks.

An analysis of the Specialty Training Standard (STS) indicates that it is extremely well supported, only one area should be reviewed by training personnel for possible removal. Only two tasks with high performance and training indicators were not matched to STS-appropriate areas and should be considered for inclusion in the structured training environment.

A comparison to the previous 1995 survey indicates members have remained generally satisfied in the work they perform. A comparison to support AFSCs surveyed in 1998 indicates AFSC 3C0X2 members are not as satisfied and re-enlistment intentions are widely lower across all TAFMS groups.

APPENDIX A

SELECTED REPRESENTATIVE TASKS PERFORMED BY SPECIALTY JOB GROUPS

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TABLE A1

GENERAL PROGRAMMING CLUSTER

TASKS		PERCENT MEMBERS PERFORMING (N=686)
C0135	Debug computer programs	91
C0131	Compile or assemble programs	77
C0138	Desk check programs	76
C0134	Correct syntax errors	76
C0150	Modify software applications	74
C0128	Code error handling routines	74
C0118	Analyze source code listings	74
C0136	Design main program algorithms or logic	74
C0122	Code computer programs in high-level compiler languages	72
A0005	Assist customers in resolving computer software malfunctions or problems	66
C0155	Perform high-level software design	65
C0152	Participate in peer reviews	64
C0153	Participate in software reviews	62
B0070	Analyze data base requirements	60
C0127	Code data base access routines	59
B0087	Design input or output formats	58
C0145	Explain software errors to customers	58
C0156	Perform low-level software design	56
B0073	Analyze methods of accessing data bases	56
C0148	Incorporate reusable software components	54
B0086	Design data elements or codes	52
C0154	Participate in structured walk-throughs of software programs	52
E0236	Write data base programs	52
C0170	Review program specifications	51
C0114	Analyze data bases	50
B0101	Evaluate communications-computer systems change requests	50
C0132	Coordinate new software releases with configuration management	50
C0172	Review software problem reports	50
C0125	Code computer programs using fourth generation languages (4GLs), such as Visual C	50
C0120	Code applications programs using data manipulation languages	49
B0068	Analyze communications-computer systems output requirements	49
C0133	Correct data entry errors	48
A0013	Edit input or output data	47
A0062	Transfer programs or data from one media to another media	47
B0085	Design data base specifications	47

Average # of Tasks Performed = 85

TABLE A2

SYSTEMS PROGRAMMING JOB

TASKS		PERCENT MEMBERS PERFORMING (N=256)
C0135	Debug computer programs	97
C0131	Compile or assemble programs	84
C0122	Code computer programs in high-level compiler languages	81
C0128	Code error handling routines	79
C0134	Correct syntax errors	79
C0136	Design main program algorithms or logic	75
C0138	Desk check programs	74
C0118	Analyze source code listings	71
C0150	Modify software applications	71
C0152	Participate in peer reviews	59
C0155	Perform high-level software design	55
A0005	Assist customers in resolving computer software malfunctions or problems	54
C0127	Code data base access routines	51
C0125	Code computer programs using fourth generation languages (4GLs), such as Visual C	50
C0153	Participate in software reviews	49
C0120	Code applications programs using data manipulation languages	48
C0148	Incorporate reusable software components	48
C0156	Perform low-level software design	45
B0087	Design input or output formats	43
C0145	Explain software errors to customers	43
C0133	Correct data entry errors	42
D0201	Maintain source code listings	41
C0137	Design problem solutions using aids, such as program design languages, structure charts, or data flow diagrams	41
C0158	Perform object-oriented design	40
E0236	Write data base programs	39
B0086	Design data elements or codes	38
C0141	Develop software prototypes	36
A0013	Edit input or output data	36
B0073	Analyze methods of accessing data bases	36
A0033	Perform file maintenance	34
B0070	Analyze data base requirements	34
A0062	Transfer programs or data from one media to another media	34
C0132	Coordinate new software releases with configuration management	34
C0157	Perform object-oriented analyses	33
A0040	Prepare input or output data	32
C0170	Review program specifications	32

Average # of Tasks Performed = 46

TABLE A3

SENIOR SYSTEMS PROGRAMMING JOB

TASKS		PERCENT MEMBERS PERFORMING (N=329)
C0135	Debug computer programs	95
C0138	Desk check programs	88
C0150	Modify software applications	88
C0118	Analyze source code listings	87
C0136	Design main program algorithms or logic	87
C0131	Compile or assemble programs	84
C0134	Correct syntax errors	84
C0155	Perform high-level software design	82
C0153	Participate in software reviews	82
C0128	Code error handling routines	81
C0145	Explain software errors to customers	77
A0005	Assist customers in resolving computer software malfunctions or problems	77
C0122	Code computer programs in high-level compiler languages	76
C0170	Review program specifications	76
C0172	Review software problem reports	75
C0156	Perform low-level software design	74
C0152	Participate in peer reviews	74
C0167	Review communications-computer systems software requirements	73
B0101	Evaluate communications-computer systems change requests	73
B0087	Design input or output formats	73
B0070	Analyze data base requirements	73
C0132	Coordinate new software releases with configuration management	72
C0154	Participate in structured walk-throughs of software programs	71
C0148	Incorporate reusable software components	70
C0137	Design problem solutions using aids, such as program design languages, structure charts, or data flow diagrams	67
C0163	Prepare plans to test software interface	67
B0076	Assist functional users in conceptualizing or defining communications-computer systems requirements	67
C0151	Participate in communications-computer systems reviews	67
C0162	Prepare or revise program specifications	66
B0073	Analyze methods of accessing data bases	66
C0169	Review input or output formats	66
B0086	Design data elements or codes	64
C0139	Develop or maintain program maintenance manuals	64
B0097	Develop or maintain software development plans	64
C0141	Develop software prototypes	64

Average # of Tasks Performed = 123

TABLE A4

DATA BASE ADMINISTRATION JOB

TASKS		PERCENT MEMBERS PERFORMING (N=64)
E0230	Modify data base structures	97
C0114	Analyze data bases	95
B0070	Analyze data base requirements	94
E0236	Write data base programs	92
B0073	Analyze methods of accessing data bases	91
B0110	Review data base specifications	89
B0085	Design data base specifications	84
E0231	Perform data base conversions	84
C0166	Review changes to data bases	81
C0176	Write data base run streams utilizing data base routines, such as query languages	80
E0228	Evaluate data base currency or accuracy	80
E0234	Review data base recovery, retrieval, or update procedures	80
E0225	Develop data base update procedures	80
E0235	Resize data base areas	78
C0147	Identify data base deficiencies	78
C0127	Code data base access routines	78
E0224	Develop data base retrieval procedures	77
E0223	Develop data base recovery procedures	75
E0233	Review data base baseline change requests	67
B0086	Design data elements or codes	64
E0229	Evaluate DBMSs	64
A0005	Assist customers in resolving computer software malfunctions or problems	63
B0106	Prepare conceptual data base diagrams	61
E0226	Develop data base usage reports	61
B0087	Design input or output formats	59
C0135	Debug computer programs	59
E0220	Analyze compatibility of user data bases with data base management systems (DBMS) packages	56
E0221	Analyze DBMS memory or storage allocations	55
E0232	Review data base audit procedures	55
A0013	Edit input or output data	53
E0227	Develop data dictionaries or data item cross references	52
E0222	Develop data base audit procedures	52
I0330	Conduct on-the-job training (OJT)	52
A0044	Recover from abnormal terminations	52
A0006	Check operational status of equipment	50
C0138	Desk check programs	48
C0152	Participate in peer reviews	45
A0031	Perform communications-computer systems recovery procedures	45

Average # of Tasks Performed = 71

TABLE A5

SYSTEMS/NETWORK ADMINISTRATION CLUSTER

TASKS		PERCENT MEMBERS PERFORMING (N=243)
A0005	Assist customers in resolving computer software malfunctions or problems	88
A0006	Check operational status of equipment	86
A0063	Troubleshoot causes of machine stops or malfunctions, other than peripheral equipment	80
A0009	Correct stoppages or malfunctions on communications-computer systems peripheral equipment	73
A0025	Notify personnel, such as supervisors or remote users, of machine failures or downtime	70
A0037	Perform user maintenance on communications-computer systems equipment	67
A0045	Remove or replace computer internal components	67
A0044	Recover from abnormal terminations	65
A0062	Transfer programs or data from one media to another media	63
A0039	Prepare communications-computer systems equipment for operation	62
A0041	Prepare peripheral equipment for operation	60
A0066	Verify systems hardware configurations	60
A0033	Perform file maintenance	60
A0031	Perform communications-computer systems recovery procedures	59
A0030	Perform communications-computer systems initialization procedures	54
F0247	Escort visitors through facilities	54
F0239	Assign user identifications (IDs) or passwords	50
A0003	Assign file or disk space to users or projects	50
A0056	Set or reset computer time clocks	47
K0362	Inventory equipment, tools, parts, or supplies	47
C0174	Train users in communications-computer systems	46
F0250	Identify and report suspected security compromises	46
B0074	Analyze operating systems security requirements	45
A0046	Request systems information	42
I0330	Conduct on-the-job training (OJT)	41
A0050	Review communications-computer systems software release or patch documentation	41
A0024	Mount or dismount data storage units	41
K0360	Identify and report equipment or supply problems	40
A0032	Perform data storage media searches	40
F0264	Store or safeguard classified materials	40
F0244	Destroy sensitive unclassified materials	39
A0047	Respond to systems requests	38
A0027	Participate in communications-computer systems equipment acceptance tests	38
A0016	Interpret indicating lights on peripheral equipment	38

Average # of Tasks Performed = 64

TABLE A6

HELP DESK TECHNICIAN JOB

TASKS		PERCENT MEMBERS PERFORMING (N=76)
A0005	Assist customers in resolving computer software malfunctions or problems	91
A0006	Check operational status of equipment	78
A0063	Troubleshoot causes of machine stops or malfunctions, other than peripheral equipment	75
A0045	Remove or replace computer internal components	75
A0009	Correct stoppages or malfunctions on communications-computer systems peripheral equipment	71
A0025	Notify personnel, such as supervisors or remote users, of machine failures or downtime	57
A0037	Perform user maintenance on communications-computer systems equipment	54
A0039	Prepare communications-computer systems equipment for operation	49
A0044	Recover from abnormal terminations	46
A0041	Prepare peripheral equipment for operation	45
A0066	Verify systems hardware configurations	41
A0033	Perform file maintenance	37
A0003	Assign file or disk space to users or projects	37
A0031	Perform communications-computer systems recovery procedures	37
F0239	Assign user identifications (IDs) or passwords	32
A0062	Transfer programs or data from one media to another media	32
A0030	Perform communications-computer systems initialization procedures	28
A0004	Assist customers in preparation of difficulty or trouble reports	26
C0174	Train users in communications-computer systems	26
A0056	Set or reset computer time clocks	25
D0190	Evaluate changes to computer networks	24
A0060	Test modems	24
I0330	Conduct on-the-job training (OJT)	22
A0032	Perform data storage media searches	22

Average # of Tasks Performed = 24

TABLE A7

SYSTEMS/NETWORK ADMINISTRATION JOB

TASKS		PERCENT MEMBERS PERFORMING (N=119)
A0063	Troubleshoot causes of machine stops or malfunctions, other than peripheral equipment	97
A0006	Check operational status of equipment	96
A0005	Assist customers in resolving computer software malfunctions or problems	95
A0044	Recover from abnormal terminations	89
A0025	Notify personnel, such as supervisors or remote users, of machine failures or downtime	87
A0062	Transfer programs or data from one media to another media	87
A0009	Correct stoppages or malfunctions on communications-computer systems peripheral equipment	87
A0037	Perform user maintenance on communications-computer systems equipment	87
A0033	Perform file maintenance	84
A0031	Perform communications-computer systems recovery procedures	82
A0066	Verify systems hardware configurations	82
A0039	Prepare communications-computer systems equipment for operation	81
A0041	Prepare peripheral equipment for operation	81
A0030	Perform communications-computer systems initialization procedures	76
A0045	Remove or replace computer internal components	74
B0074	Analyze operating systems security requirements	73
A0003	Assign file or disk space to users or projects	71
A0056	Set or reset computer time clocks	71
A0046	Request systems information	68
F0247	Escort visitors through facilities	68
C0174	Train users in communications-computer systems	67
F0239	Assign user identifications (IDs) or passwords	66
A0047	Respond to systems requests	66
A0032	Perform data storage media searches	62
A0064	Update equipment configuration or utilization logs	61
D0183	Determine impact of operating systems errors	60
A0054	Review technological developments in communications-computer systems	60
K0362	Inventory equipment, tools, parts, or supplies	60
A0024	Mount or dismount data storage units	60
F0250	Identify and report suspected security compromises	58
A0016	Interpret indicating lights on peripheral equipment	57
B0069	Analyze communications-computer systems processing capabilities	57
A0027	Participate in communications-computer systems equipment acceptance tests	57
K0367	Pick up, deliver, or store equipment, tools, parts, or supplies	57
I0330	Conduct on-the-job training (OJT)	56
D0178	Answer inquiries from customers, such as computer job or message status	55
A0036	Perform or practice communications-computer systems emergency procedures	55
C0119	Change communications-computer systems software by patching	53

Average # of Tasks Performed = 99

TABLE A8

SYSTEMS/NETWORK SECURITY JOB

TASKS		PERCENT MEMBERS PERFORMING (N=49)
F0264	Store or safeguard classified materials	94
F0244	Destroy sensitive unclassified materials	94
F0237	Annotate or stamp sensitive unclassified or classified information, other than messages	83
F0247	Escort visitors through facilities	83
J0347	Destroy classified materials or documents	78
A0006	Check operational status of equipment	78
F0250	Identify and report suspected security compromises	78
F0265	Verify authorization to access files	72
F0246	Distribute classified materials	72
A0062	Transfer programs or data from one media to another media	72
F0252	Inspect classified materials	72
A0030	Perform communications-computer systems initialization procedures	72
F0263	Sign receipts for classified materials	72
F0240	Authorize or deny access to restricted or controlled areas or classified materials	67
A0039	Prepare communications-computer systems equipment for operation	67
A0041	Prepare peripheral equipment for operation	67
A0037	Perform user maintenance on communications-computer systems equipment	67
F0243	Designate classified materials for destruction	67
F0239	Assign user identifications (IDs) or passwords	61
A0063	Troubleshoot causes of machine stops or malfunctions, other than peripheral equipment	61
A0031	Perform communications-computer systems recovery procedures	61
A0005	Assist customers in resolving computer software malfunctions or problems	56
A0044	Recover from abnormal terminations	56
J0350	Inventory classified materials or documents	50
F0257	Prepare classified materials for mail, delivery, or distribution	50
F0248	Establish or update classified material files	50
F0255	Perform computer system security officer (CSSO) duties	50
A0009	Correct stoppages or malfunctions on communications-computer systems peripheral equipment	50
I0330	Conduct on-the-job training (OJT)	50
A0024	Mount or dismount data storage units	50
K0362	Inventory equipment, tools, parts, or supplies	44
C0174	Train users in communications-computer systems	44
B0074	Analyze operating systems security requirements	44
F0251	Initiate classified reports, messages, or documents	44
K0360	Identify and report equipment or supply problems	44
A0066	Verify systems hardware configurations	44
A0045	Remove or replace computer internal components	39
F0262	Secure sites or equipment for classified processing	39
F0258	Prepare destruction reports for classified materials	39
F0245	Determine authorization to access files	39

Average # of Tasks Performed = 4

TABLE A9

SUPPLY JOB

TASKS		PERCENT MEMBERS PERFORMING (N=14)
K0362	Inventory equipment, tools, parts, or supplies	93
K0367	Pick up, deliver, or store equipment, tools, parts, or supplies	86
A0006	Check operational status of equipment	86
A0005	Assist customers in resolving computer software malfunctions or problems	79
K0363	Issue or log turn-ins of equipment, tools, parts, or supplies	71
K0361	Initiate requisitions for equipment, tools, parts, or supplies	71
K0360	Identify and report equipment or supply problems	71
A0045	Remove or replace computer internal components	64
K0366	Maintain organizational equipment or supply records	64
F0247	Escort visitors through facilities	64
K0359	Evaluate serviceability of equipment, tools, parts, or supplies	50
K0358	Document missing equipment with reports of survey	50
A0063	Troubleshoot causes of machine stops or malfunctions, other than peripheral equipment	43
A0033	Perform file maintenance	43
A0062	Transfer programs or data from one media to another media	43
A0066	Verify systems hardware configurations	43
A0025	Notify personnel, such as supervisors or remote users, of machine failures or downtime	43
A0009	Correct stoppages or malfunctions on communications-computer systems peripheral equipment	36
K0357	Develop equipment checklists	36
H0288	Determine or establish logistics requirements, such as personnel, equipment, tools, parts, supplies, or workspace	36
A0003	Assign file or disk space to users or projects	36
I0330	Conduct on-the-job training (OJT)	29

Average # of Tasks Performed = 27

TABLE A10

MANAGEMENT CLUSTER

TASKS		PERCENT MEMBERS PERFORMING (N=127)
H0287	Counsel subordinates concerning personal matters	94
H0284	Conduct supervisory performance feedback sessions	91
H0322	Write or indorse military performance reports	89
H0301	Establish performance standards for subordinates	86
H0323	Write recommendations for awards or decorations	86
H0305	Evaluate personnel for compliance with performance standards	84
H0289	Determine or establish work assignments or priorities	83
H0310	Interpret policies, directives, or procedures for subordinates	80
H0286	Conduct supervisory orientations for newly assigned personnel	76
H0317	Schedule personnel for temporary duty (TDY) assignments, leaves, or passes	73
I0338	Evaluate progress of trainees	72
I0331	Counsel trainees on training progress	72
I0341	Maintain training records or files	70
I0330	Conduct on-the-job training (OJT)	69
H0296	Develop or establish work schedules	65
H0309	Initiate actions required due to substandard performance of personnel	62
H0281	Conduct general meetings, such as staff meetings, briefings, conferences, or workshops	61
H0295	Develop or establish work methods or procedures	61
I0327	Brief personnel concerning training programs or matters	60
A0005	Assist customers in resolving computer software malfunctions or problems	55
H0288	Determine or establish logistics requirements, such as personnel, equipment, tools, parts, supplies, or workspace	50
H0282	Conduct self-inspections or self-assessments	47
J0348	Initiate requests for TDY orders	47
I0333	Develop training programs, plans, or procedures	44
H0300	Establish organizational policies, such as operating instructions (OIs) or standard operating procedures (SOPs)	44
F0247	Escort visitors through facilities	44
I0337	Evaluate effectiveness of training programs, plans, or procedures	42
H0320	Write job or position descriptions	42
H0279	Assign personnel to work areas or duty positions	40
H0307	Implement safety or security programs	40
F0264	Store or safeguard classified materials	39
A0062	Transfer programs or data from one media to another media	39
F0250	Identify and report suspected security compromises	39
A0049	Review communications-computer systems requirements documents (CSRDs)	39
J0351	Maintain administrative files	38
J0354	Write minutes of briefings, conferences, or meetings	38
H0308	Initiate personnel action requests	35
A0025	Notify personnel, such as supervisors or remote users, of machine failures or downtime	35

Average # of Tasks Performed = 62

TABLE A11

SENIOR SYSTEMS/NETWORK ADMINISTRATION JOB

TASKS		PERCENT MEMBERS PERFORMING (N=8)
A0005	Assist customers in resolving computer software malfunctions or problems	100
A0006	Check operational status of equipment	100
H0284	Conduct supervisory performance feedback sessions	100
H0322	Write or indorse military performance reports	100
H0289	Determine or establish work assignments or priorities	100
H0287	Counsel subordinates concerning personal matters	100
A0044	Recover from abnormal terminations	88
A0033	Perform file maintenance	75
I0330	Conduct on-the-job training (OJT)	75
H0323	Write recommendations for awards or decorations	75
A0063	Troubleshoot causes of machine stops or malfunctions, other than peripheral equipment	75
A0066	Verify systems hardware configurations	75
A0009	Correct stoppages or malfunctions on communications-computer systems peripheral equipment	75
A0031	Perform communications-computer systems recovery procedures	75
A0045	Remove or replace computer internal components	75
A0003	Assign file or disk space to users or projects	75
H0301	Establish performance standards for subordinates	63
A0037	Perform user maintenance on communications-computer systems equipment	63
A0039	Prepare communications-computer systems equipment for operation	63
A0001	Align files on disks	63
C0173	Train computer operators (AFSC 3C0X2) in communications-computer systems	63
H0286	Conduct supervisory orientations for newly assigned personnel	63
A0062	Transfer programs or data from one media to another media	63
A0030	Perform communications-computer systems initialization procedures	63
A0025	Notify personnel, such as supervisors or remote users, of machine failures or downtime	63
H0296	Develop or establish work schedules	50

Average # of Tasks Performed = 62

TABLE A12

AWACS SYSTEMS PROGRAMMING MANAGEMENT JOB

TASKS		PERCENT MEMBERS PERFORMING (N=12)
I0330	Conduct on-the-job training (OJT)	100
H0301	Establish performance standards for subordinates	100
H0284	Conduct supervisory performance feedback sessions	100
H0287	Counsel subordinates concerning personal matters	100
F0264	Store or safeguard classified materials	92
H0305	Evaluate personnel for compliance with performance standards	92
F0251	Initiate classified reports, messages, or documents	92
H0322	Write or indorse military performance reports	92
H0289	Determine or establish work assignments or priorities	83
H0310	Interpret policies, directives, or procedures for subordinates	83
J0347	Destroy classified materials or documents	83
I0331	Counsel trainees on training progress	83
F0243	Designate classified materials for destruction	83
H0317	Schedule personnel for temporary duty (TDY) assignments, leaves, or passes	83
I0338	Evaluate progress of trainees	75
F0244	Destroy sensitive unclassified materials	75
H0323	Write recommendations for awards or decorations	75
F0237	Annotate or stamp sensitive unclassified or classified information, other than messages	75
H0309	Initiate actions required due to substandard performance of personnel	75
A0015	Initiate processing, such as batched job, on-line, or off-line	67
H0295	Develop or establish work methods or procedures	67
I0341	Maintain training records or files	67
A0062	Transfer programs or data from one media to another media	67
H0286	Conduct supervisory orientations for newly assigned personnel	67
C0133	Correct data entry errors	50
F0247	Escort visitors through facilities	50
A0040	Prepare input or output data	50
C0130	Code job control run streams in scripting languages	50
H0296	Develop or establish work schedules	50
A0005	Assist customers in resolving computer software malfunctions or problems	50
I0333	Develop training programs, plans, or procedures	50
F0250	Identify and report suspected security compromises	50
F0252	Inspect classified materials	50
A0013	Edit input or output data	42
E0228	Evaluate data base currency or accuracy	42
F0246	Distribute classified materials	42
H0307	Implement safety or security programs	42
A0030	Perform communications-computer systems initialization procedures	42
F0263	Sign receipts for classified materials	42
C0127	Code data base access routines	42
F0258	Prepare destruction reports for classified materials	42
C0152	Participate in peer reviews	42

Average # of Tasks Performed = 5

TABLE A13

SENIOR MANAGEMENT JOB

TASKS		PERCENT MEMBERS PERFORMING (N=83)
H0287	Counsel subordinates concerning personal matters	95
H0323	Write recommendations for awards or decorations	92
H0305	Evaluate personnel for compliance with performance standards	90
H0322	Write or indorse military performance reports	89
H0301	Establish performance standards for subordinates	89
H0284	Conduct supervisory performance feedback sessions	89
H0310	Interpret policies, directives, or procedures for subordinates	88
H0289	Determine or establish work assignments or priorities	86
H0286	Conduct supervisory orientations for newly assigned personnel	84
H0317	Schedule personnel for temporary duty (TDY) assignments, leaves, or passes	80
H0281	Conduct general meetings, such as staff meetings, briefings, conferences, or workshops	78
H0296	Develop or establish work schedules	77
I0338	Evaluate progress of trainees	76
I0341	Maintain training records or files	73
H0309	Initiate actions required due to substandard performance of personnel	71
I0331	Counsel trainees on training progress	69
I0327	Brief personnel concerning training programs or matters	69
H0295	Develop or establish work methods or procedures	65
H0288	Determine or establish logistics requirements, such as personnel, equipment, tools, parts, supplies, or workspace	61
I0330	Conduct on-the-job training (OJT)	60
H0320	Write job or position descriptions	55
H0282	Conduct self-inspections or self-assessments	54
J0354	Write minutes of briefings, conferences, or meetings	53
H0279	Assign personnel to work areas or duty positions	52
J0348	Initiate requests for TDY orders	52
H0280	Assign sponsors for newly assigned personnel	51
H0300	Establish organizational policies, such as operating instructions (OIs) or standard operating procedures (SOPs)	49
H0308	Initiate personnel action requests	49
A0005	Assist customers in resolving computer software malfunctions or problems	47
I0333	Develop training programs, plans, or procedures	47
H0313	Review budget requirements	45
A0049	Review communications-computer systems requirements documents (CSRDs)	45
J0351	Maintain administrative files	43
H0307	Implement safety or security programs	43
F0247	Escort visitors through facilities	43
A0050	Review communications-computer systems software release or patch documentation	42
D0204	Participate in configuration control boards (CCBs)	41
F0250	Identify and report suspected security compromises	41

Average # of Tasks Performed = 66

TABLE A14

QUALITY ASSURANCE AND TESTING JOB

TASKS		PERCENT MEMBERS PERFORMING (N=36)
D0207	Prepare communications-computer systems test reports	97
D0177	Analyze communications-computer systems test results	92
D0216	Run validation and verification tests on communications-computer systems	89
C0172	Review software problem reports	86
D0203	Participate in communications-computer systems software acceptance tests	81
D0206	Prepare communications-computer systems test plans, other than software interface	78
C0163	Prepare plans to test software interface	78
D0185	Develop inputs to communications-computer systems test plans	75
D0191	Evaluate communications-computer systems test plans	72
C0152	Participate in peer reviews	72
D0205	Prepare communications-computer systems input test data	69
D0218	Track status of software discrepancies	69
C0151	Participate in communications-computer systems reviews	69
A0049	Review communications-computer systems requirements documents (CSRDs)	69
A0027	Participate in communications-computer systems equipment acceptance tests	67
C0160	Prepare communications-computer systems software test analysis reports	67
C0165	Prepare software problem reports	67
C0153	Participate in software reviews	67
C0167	Review communications-computer systems software requirements	64
A0050	Review communications-computer systems software release or patch documentation	64
I0330	Conduct on-the-job training (OJT)	61
F0264	Store or safeguard classified materials	61
C0168	Review computer operation manuals	61
A0062	Transfer programs or data from one media to another media	58
J0347	Destroy classified materials or documents	58
D0217	Run integration tests on communications-computer systems	56
A0040	Prepare input or output data	56
C0170	Review program specifications	56
A0030	Perform communications-computer systems initialization procedures	56
B0067	Analyze communications-computer systems interface or integration requirements	56
B0071	Analyze input or output products of other functional systems for interface with existing systems	53
F0250	Identify and report suspected security compromises	53
A0051	Review input data for compliance with standards or specifications	50
B0068	Analyze communications-computer systems output requirements	50
H0301	Establish performance standards for subordinates	50
F0237	Annotate or stamp sensitive unclassified or classified information, other than messages	50
A0007	Check out data storage media from library	50
F0243	Designate classified materials for destruction	50
F0244	Destroy sensitive unclassified materials	50
D0213	Review computer output products for compliance with standards or specifications	47
C0175	Verify problem statements expressed in difficulty or trouble reports	47

Average # of Tasks Performed = 58

TABLE A15

CONFIGURATION MANAGEMENT JOB

TASKS		PERCENT MEMBERS PERFORMING (N=19)
D0180	Conduct configuration management audits	95
D0189	Draft or write configuration management plans	95
D0179	Assign configuration management control numbers	89
D0192	Evaluate configuration management plans	89
D0204	Participate in configuration control boards (CCBs)	84
D0198	Maintain change control form logs or configuration status accounting logs	79
D0188	Draft or write configuration management audit reports	79
D0218	Track status of software discrepancies	74
D0210	Prepare software release packages	74
D0197	Inventory software release packages	74
C0153	Participate in software reviews	74
C0152	Participate in peer reviews	68
D0181	Coordinate new systems releases with users	63
C0132	Coordinate new software releases with configuration management	63
D0187	Develop software release procedures	63
C0151	Participate in communications-computer systems reviews	63
B0082	Coordinate new systems with configuration management	63
C0172	Review software problem reports	58
A0012	Distribute systems documentation changes to customers	53
D0200	Maintain software support libraries	47
D0208	Prepare computer software configuration items (CSCIs)	47
A0050	Review communications-computer systems software release or patch documentation	47
C0144	Evaluate software baseline change requests	47
A0053	Review software development guides	47
A0049	Review communications-computer systems requirements documents (CSRDs)	47
D0201	Maintain source code listings	42
J0354	Write minutes of briefings, conferences, or meetings	42
B0101	Evaluate communications-computer systems change requests	42
C0165	Prepare software problem reports	37
D0199	Maintain reusable software components	37
D0177	Analyze communications-computer systems test results	37
C0164	Prepare software baseline change requests	37
H0295	Develop or establish work methods or procedures	37
B0100	Develop or maintain software support plans	37
A0043	Prepare unclassified media for mail or distribution	37
B0099	Develop or maintain software management plans	37
A0005	Assist customers in resolving computer software malfunctions or problems	37
F0250	Identify and report suspected security compromises	37

Average # of Tasks Performed = 52

TABLE A16

FORMAL TRAINING JOB

TASKS		PERCENT MEMBERS PERFORMING (N=16)
I0333	Develop training programs, plans, or procedures	100
I0341	Maintain training records or files	94
I0329	Conduct formal course classroom training	88
I0340	Inspect training materials or aids for operation or suitability	88
I0342	Personalize lesson plans	88
I0335	Develop or procure training materials or aids	88
I0334	Develop written tests	88
I0327	Brief personnel concerning training programs or matters	88
I0337	Evaluate effectiveness of training programs, plans, or procedures	81
I0338	Evaluate progress of trainees	81
I0332	Develop formal course curricula, plans of instruction (POIs), or specialty training standards (STSs)	75
I0330	Conduct on-the-job training (OJT)	75
I0331	Counsel trainees on training progress	75
I0336	Establish or maintain study reference files	69
A0006	Check operational status of equipment	69
C0174	Train users in communications-computer systems	63
I0339	Evaluate training methods or techniques of instructors	63
I0326	Administer or score tests	63
I0343	Prepare task listings	63
A0005	Assist customers in resolving computer software malfunctions or problems	63
I0328	Complete student entry or withdrawal forms	56
A0009	Correct stoppages or malfunctions on communications-computer systems peripheral equipment	56
H0301	Establish performance standards for subordinates	50
I0344	Write training reports	50
H0281	Conduct general meetings, such as staff meetings, briefings, conferences, or workshops	44
J0348	Initiate requests for TDY orders	38
C0158	Perform object-oriented design	38
C0157	Perform object-oriented analyses	38
C0118	Analyze source code listings	38
H0287	Counsel subordinates concerning personal matters	38
C0138	Desk check programs	38
J0345	Compile data for records, reports, logs, or trend analyses	38
A0054	Review technological developments in communications-computer systems	38
C0122	Code computer programs in high-level compiler languages	38
A0044	Recover from abnormal terminations	38

Average # of Tasks Performed = 56